



284768



CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 16, 2004

Mr. Nabil Fayoumi
United States Environmental Protection Agency
Region V
Superfund Division
77 W. Jackson Blvd. (SR-6J)
Chicago, IL 60604-3590

RE: Requested Copies of Historical Groundwater Elevations and Dissolved Phase Plumes
Phillips Pipe Line Company – East St. Louis Terminal
3300 Mississippi Avenue, Cahokia, Illinois

Dear Mr. Fayoumi:

In response to your telephone request made on September 7, 2004, ConocoPhillips hereby provides you with copies of previously submitted groundwater contour maps, well locations and dissolved phase benzene and MTBE plumes located at the Phillips Pipe Line East St. Louis Terminal. Also please note that the data these maps are drawn from is present in tabular form in Tables 2 and 3 on the 2003 Remediation Progress Report, which was sent to you under separate cover on June 18, 2004 after your site visit and is therefore not being provided again in this submittal.

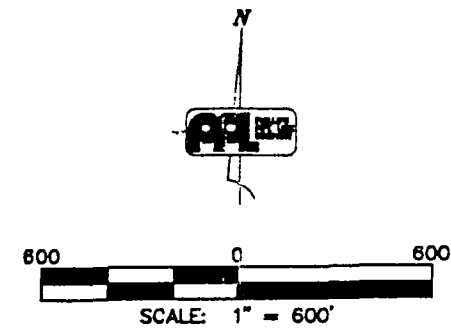
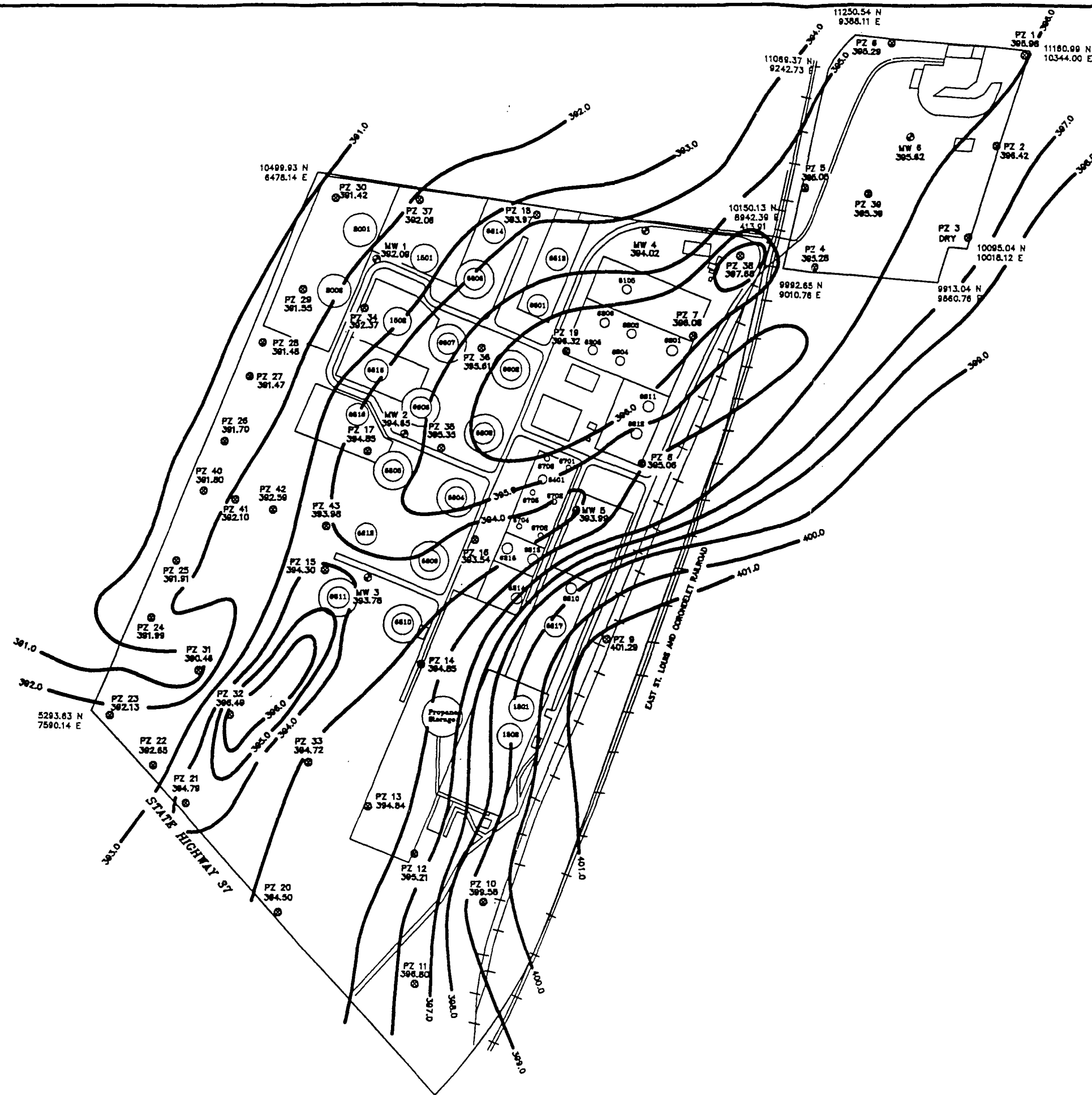
We trust that this information furthers your understanding of the remediation work being done at the site, the extent of our groundwater monitoring network, and the relative immobility of our contaminant plume. If you have any further questions or requests, please contact me directly at (618) 255-3190.

Sincerely,

Eric S. Petersen
Site Manager, Risk Management and Remediation

Enclosures

ESP/esp



- LEGEND
- - MONITOR WELL LOCATION
 - - PIEZOMETER LOCATION
 - 400.05 - GROUNDWATER ELEVATION
 - GROUNDWATER CONTOUR
 - NM - GROUNDWATER NOT MEASURED

NOTE: THE LOCATIONS OF PZ 38, AND PZ 39 ARE APPROXIMATE AND SUBJECT TO SURVEY

NO.	DATE	INT.	REVISION

NOTES/COMMENTS:

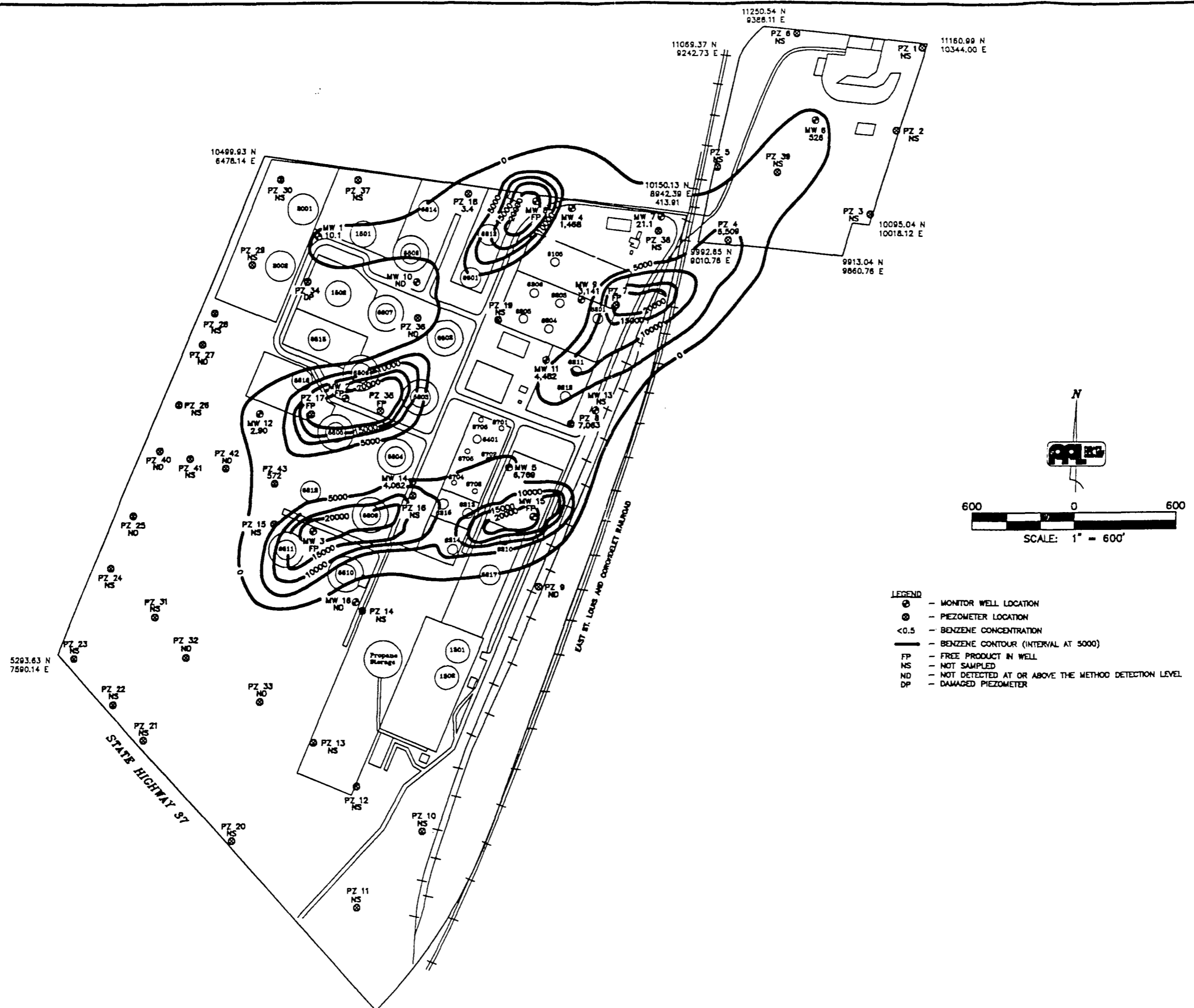
SIGNATURE	DATE
REVIEW ENGINEER:	
PROJECT ENGINEER:	
PROJECT MGR:	
CLIENT:	

PREPARED FOR:
 ENGINEERING & ENVIRONMENTAL ANALYSIS CORPORATION
SECOR
 846 UNION BOULEVARD
 SUITE 200
 LAKEWOOD, COLORADO 80226

PHILLIPS PIPELINE CO.
 EAST ST. LOUIS TERMINAL
 3300 MISSISSIPPI
 CAHOKIA, ILLINOIS

GROUNDWATER CONTOUR MAP
 SEPTEMBER 28-30, 1994

DESIGNED BY:	DETAILED BY:	CHECKED BY:
	DJZ	JMK
DATE:	11/30/94	ACAD FILE:
		24-002
PROJECT NO.:	80024-002-02	PLOT SCALE:
		1 = 300
FIGURE:	2	SHEET:
		2 of 3



- LEGEND**
- ⊙ - MONITOR WELL LOCATION
 - ⊙ - PIEZOMETER LOCATION
 - <0.5 - BENZENE CONCENTRATION
 - - BENZENE CONTOUR (INTERVAL AT 5000)
 - FP - FREE PRODUCT IN WELL
 - NS - NOT SAMPLED
 - ND - NOT DETECTED AT OR ABOVE THE METHOD DETECTION LEVEL
 - DP - DAMAGED PIEZOMETER

NO.	DATE	INT.	REVISION

NO.	DATE	INT.	REVISION

NOTES/COMMENTS:

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CHECKED:	

SECOR

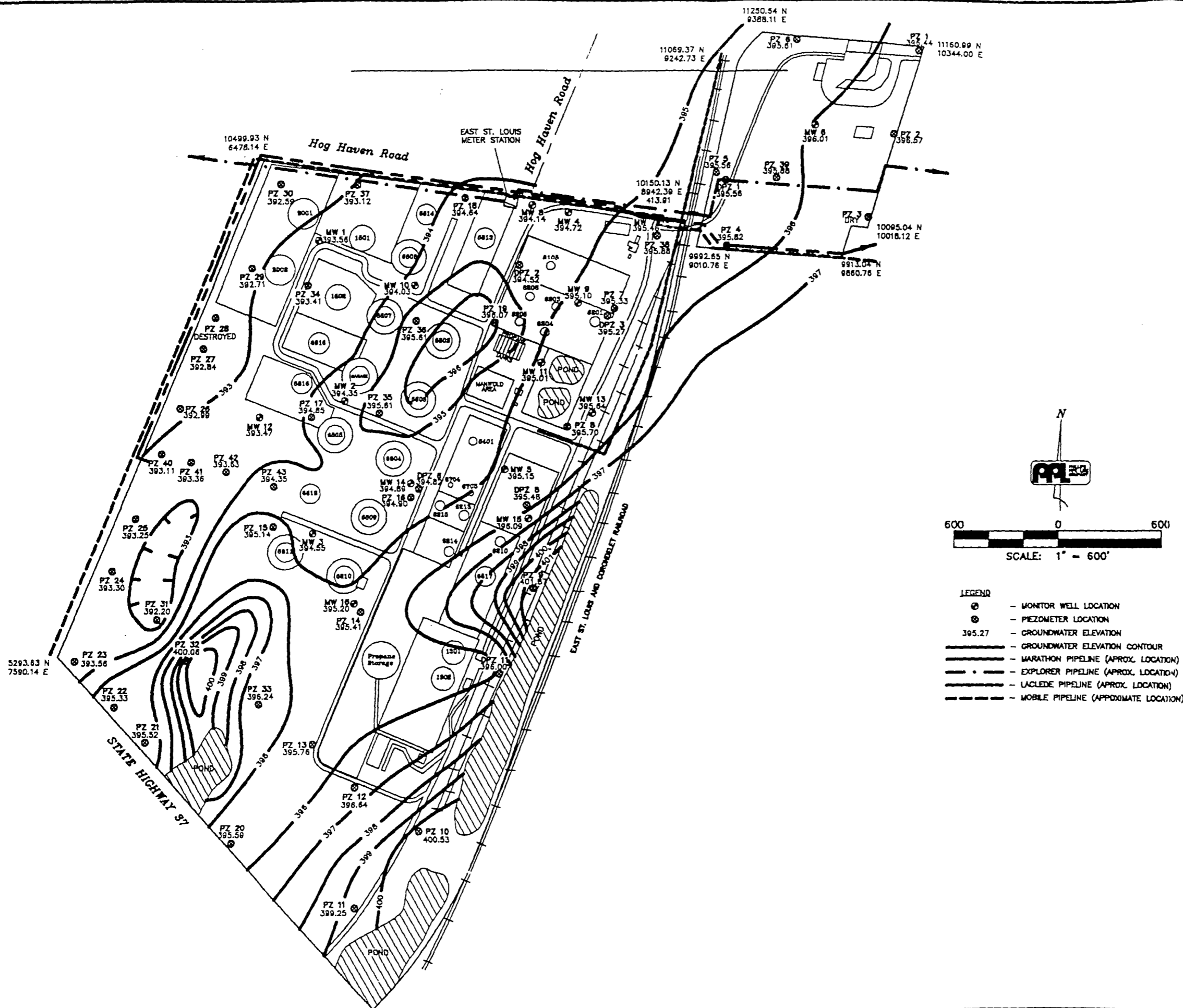
344 UNION BOULEVARD
SUITE 300
LAKEWOOD, COLORADO 80226

PHILLIPS PIPELINE CO.
EAST ST. LOUIS TERMINAL

3300 MISSISSIPPI
CAHOKIA, ILLINOIS

BENZENE CONCENTRATION MAP
NOVEMBER 30, 1994

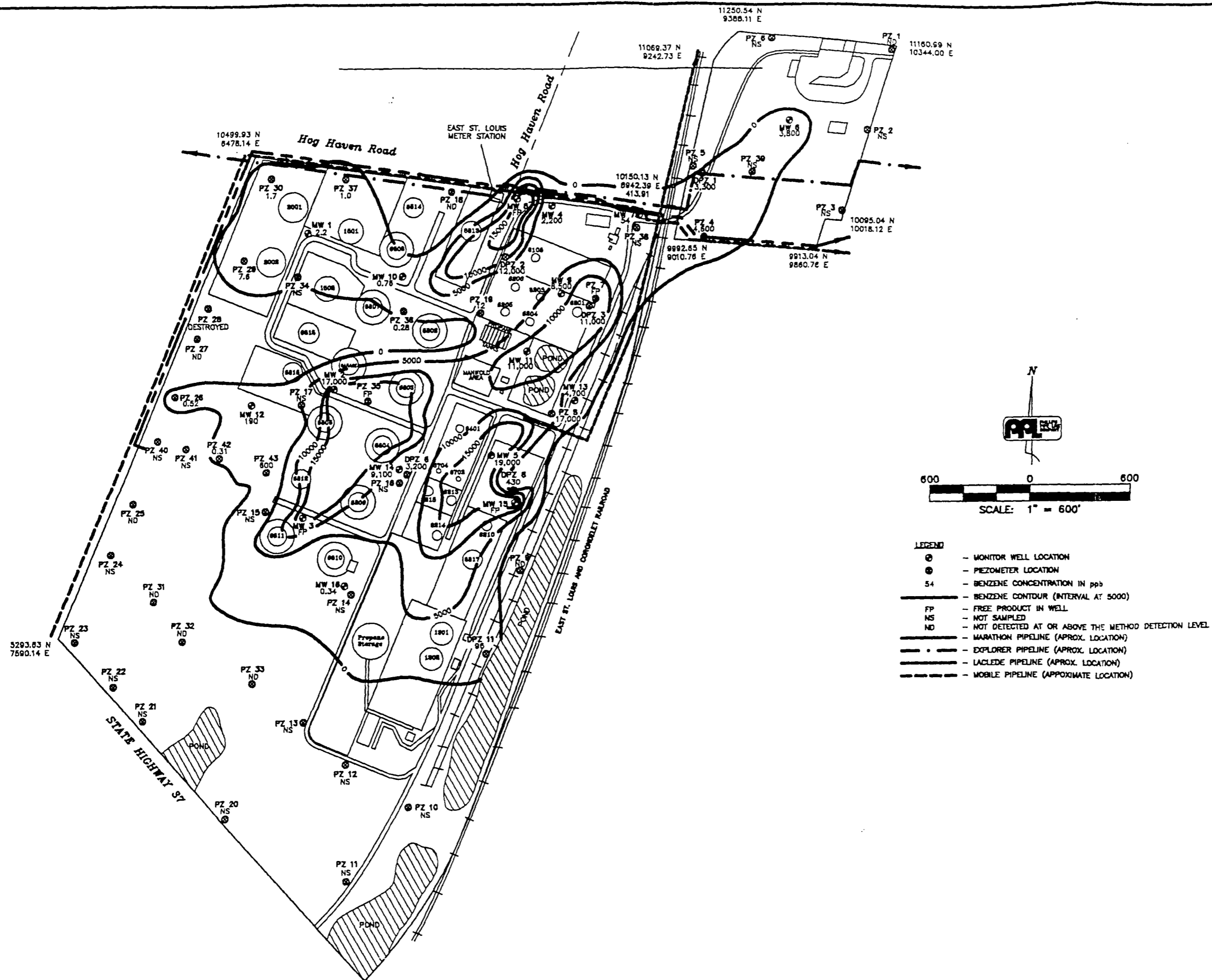
DESIGNED BY:	DETAILED BY:	CHECKED BY:
	DJZ/SDP	TRJ
DATE:	ACAD FILE:	
01/24/95	PHILBENZ	
PROJECT NO.:	PLOT SCALE:	
80024-002-02	1 = 300	
FIGURE:	REVISION:	SHEET:
3	-	3 of 3



NO.	DATE	INT.	REVISION

SIGNATURE		DATE
REVIEW ENGR.		
PROJECT ENGR.		
PROJECT MGR.		
CLIENT:		

PREPARED BY: SECOR INTERNATIONAL, INCORPORATED SECOR 846 HODGEN BOULEVARD SUITE 200 LAKEWOOD, COLORADO 80238		
PREPARED FOR: PHILLIPS PIPELINE CO. EAST ST. LOUIS TERMINAL 3300 MISSISSIPPI CAHOKIA, ILLINOIS		
GROUNDWATER ELEVATION CONTOUR MAP MARCH 20, 1988		
DESIGNED BY: DA	DETAILED BY: DJZ/SCS	CHECKED BY:
DATE: 04/06/85	ACAD FILE: PHIL-GRW	
PROJECT NO.: 80024-002-02	PLAT SCALE: 1" = 300'	
FIGURE 2		

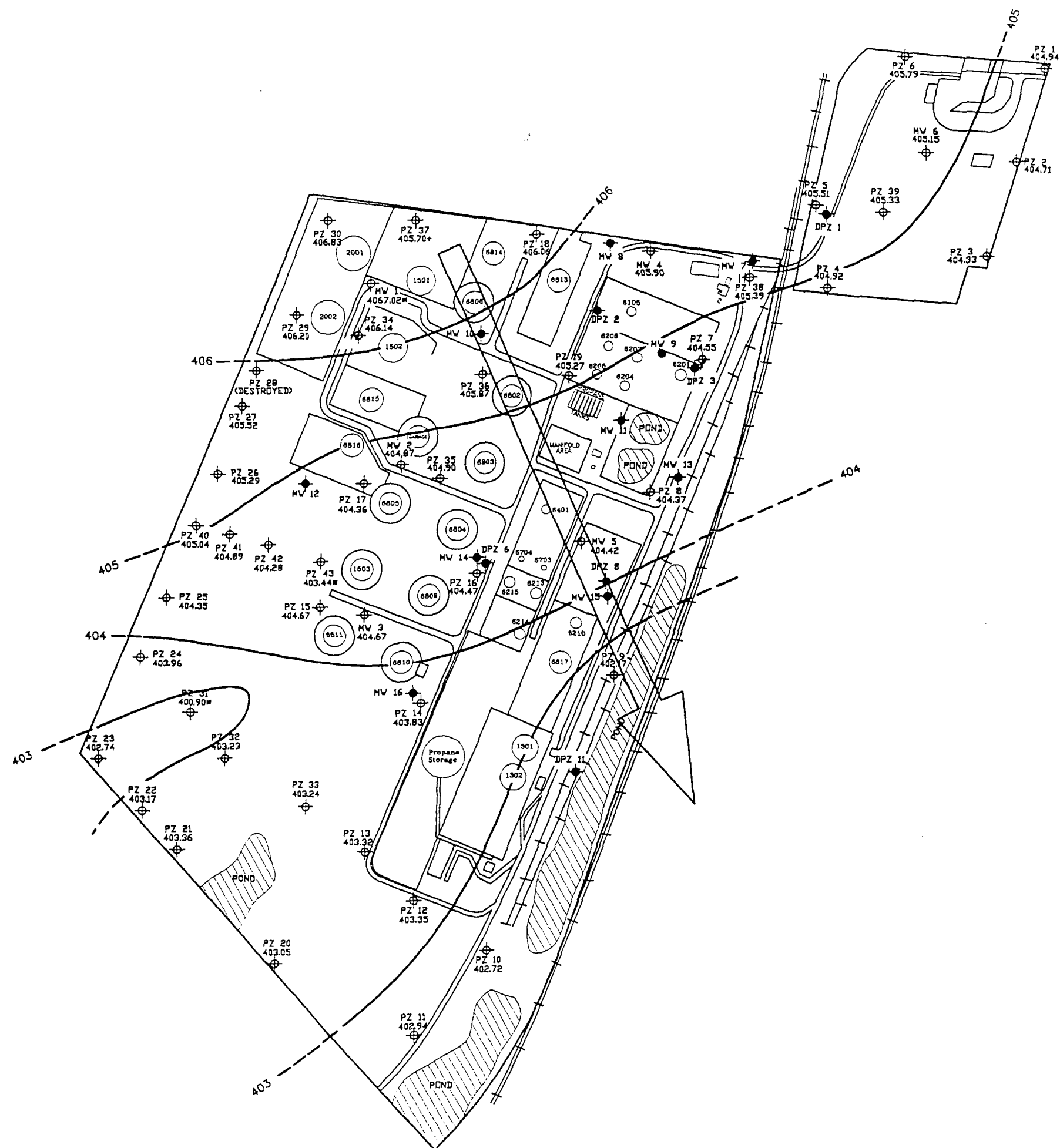





NO.	DATE	INT.	REVISION

SIGNATURE		DATE
REVIEW ENGINEER		
PROJECT ENGINEER		
PROJECT MGR.		
CLIENT		

PROVIDED BY SECOR 888 UNION BOULEVARD SUITE 200 LAKEWOOD, COLORADO 80008		
PROVIDED FOR PHILLIPS PIPELINE CO. EAST ST. LOUIS TERMINAL 3300 MISSISSIPPI CHICAGO, ILLINOIS		
BENZENE CONCENTRATION MAP VALUES IN ppb MARCH 21, 1998		
DESIGNED BY: DA	DETAILED BY: DJZ/SCS	CHECKED BY:
DATE: 05/03/95	ACAD FILE: PHILBENZ	
PROJECT NO.: 80024-002-02	PLAT SCALE: 1" = 300'	

FIGURE 3

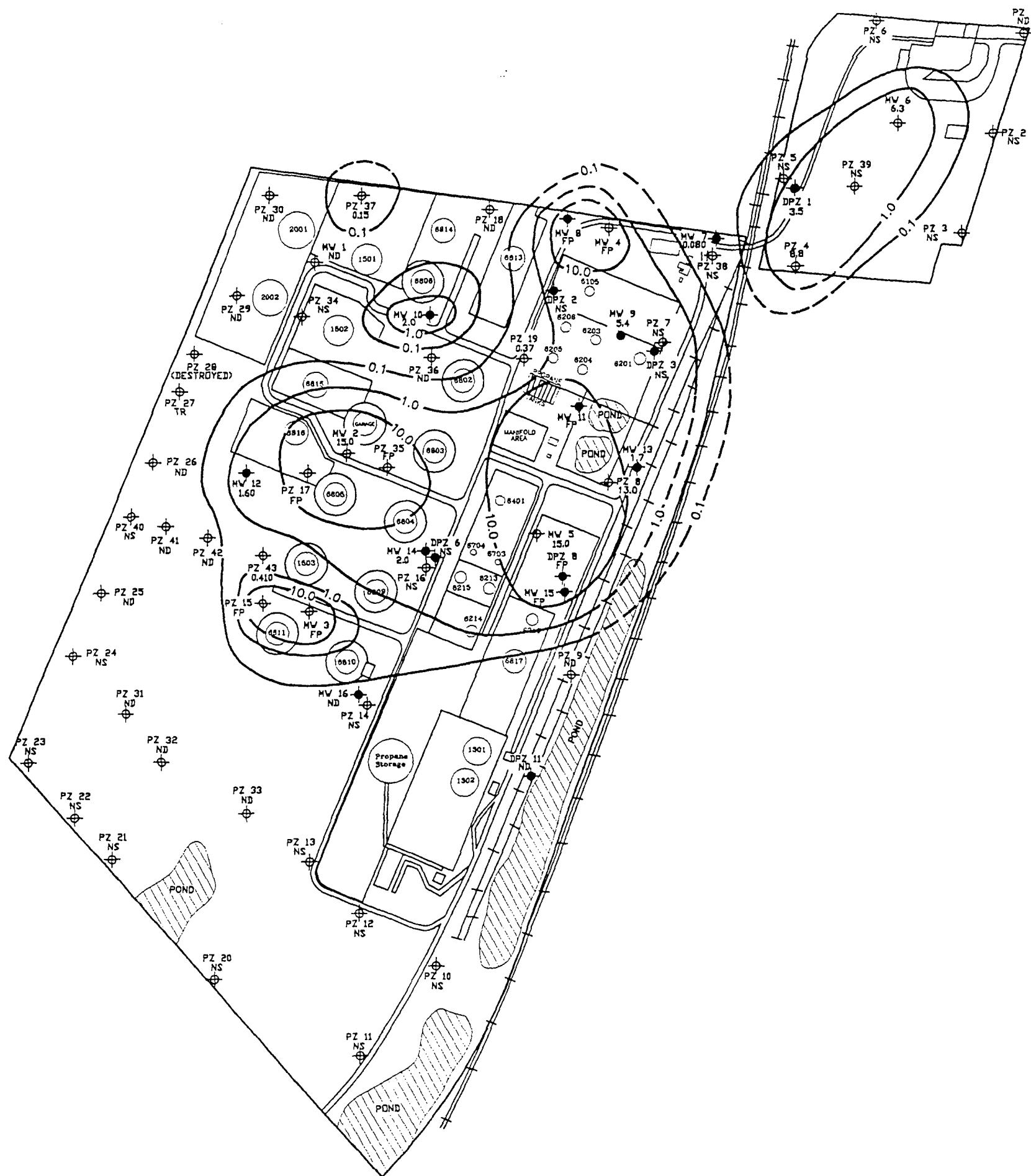


- | <u>EXPLANATION</u> | |
|---|---|
| PZ 1  | - SHALLOW MONITORING WELL LOCATION AND IDENTIFICATION |
| DPZ 1  | - DEEP MONITORING WELL LOCATION AND IDENTIFICATION |
| 385.27 | - GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL) |
| 396 | - POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED. |
| • | - WATER LEVEL NOT USED IN DEVELOPING POTENTIOMETRIC CONTOURS |
| + | - WATER LEVEL ABOVE WELL CASING. WATER FLOWING FROM WELL |
|  | - GROUNDWATER FLOW DIRECTION |

NOTE: WATER LEVELS MEASURED IN WELLS OVER A THREE DAY PERIOD FROM JUNE 20 TO JUNE 22, 1995

[illegible]

FIGURE 3



- EXPLANATION**
- PZ 1 - SHALLOW MONITORING WELL LOCATION AND IDENTIFICATION
 - DPZ 1 - DEEP MONITORING WELL LOCATION AND IDENTIFICATION
 - 5.7 - BENZENE CONCENTRATION IN GROUNDWATER IN MILLIGRAMS PER LITRE (mg/l)
 - 1.0 - CONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN mg/l, DASHED WHERE INFERRED
 - ND - BENZENE NOT DETECTED AT ANALYTICAL REPORTING LIMIT OF 0.0005 mg/l
 - TR - BENZENE DETECTED AT TRACE CONCENTRATION BELOW ANALYTICAL REPORTING LIMIT
 - NS - NOT SAMPLED
 - FP - FREE PRODUCT IN WELL CASING

NO.	DATE	INIT.	REVISION

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:
SECOR
 366 UNION BOULEVARD
 SUITE 200
 LAKEWOOD, COLORADO 80226

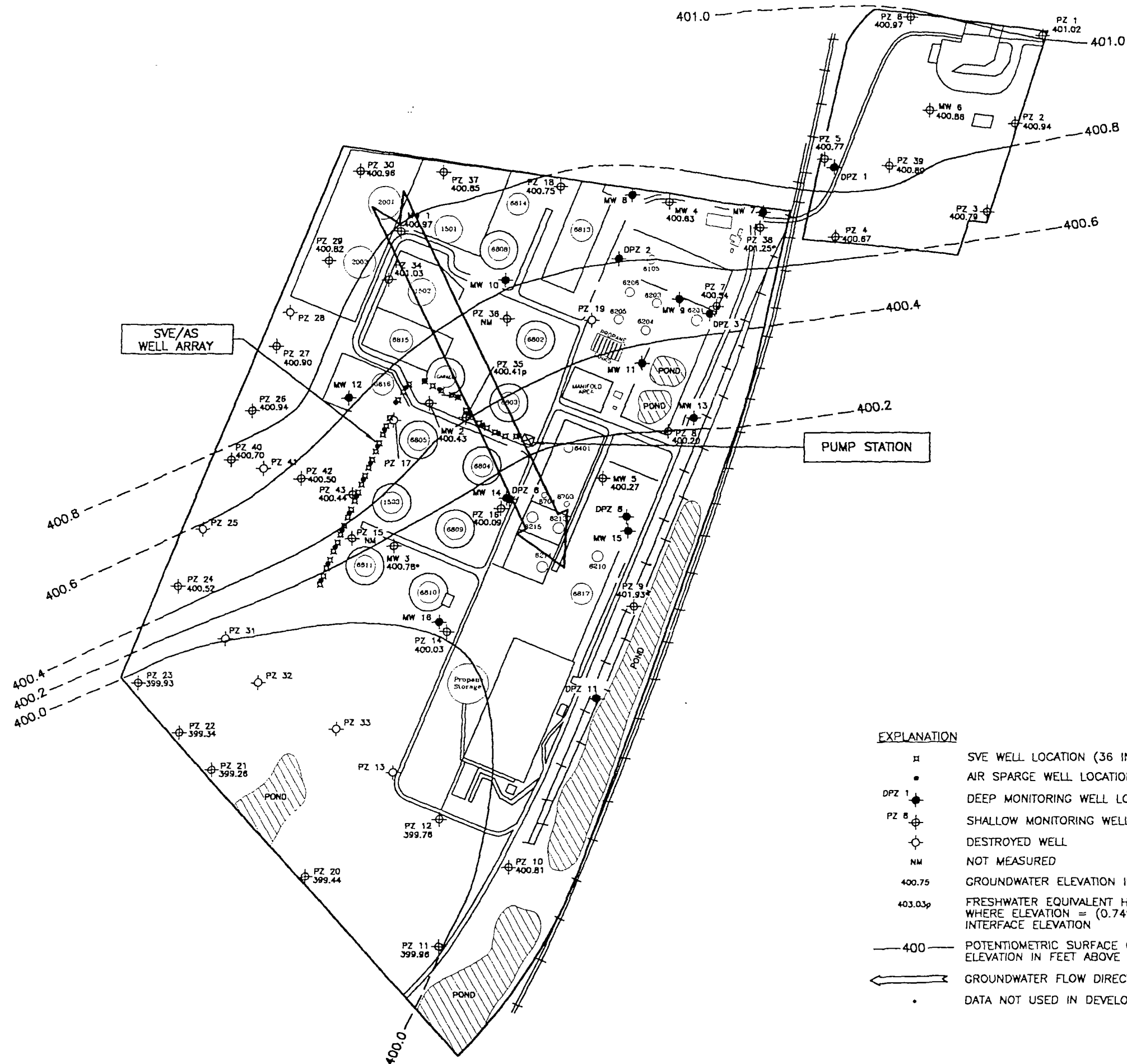
PHILLIPS PIPE LINE CO.
 EAST ST. LOUIS TERMINAL

3300 MISSISSIPPI AVENUE
 CAHOKIA, ILLINOIS

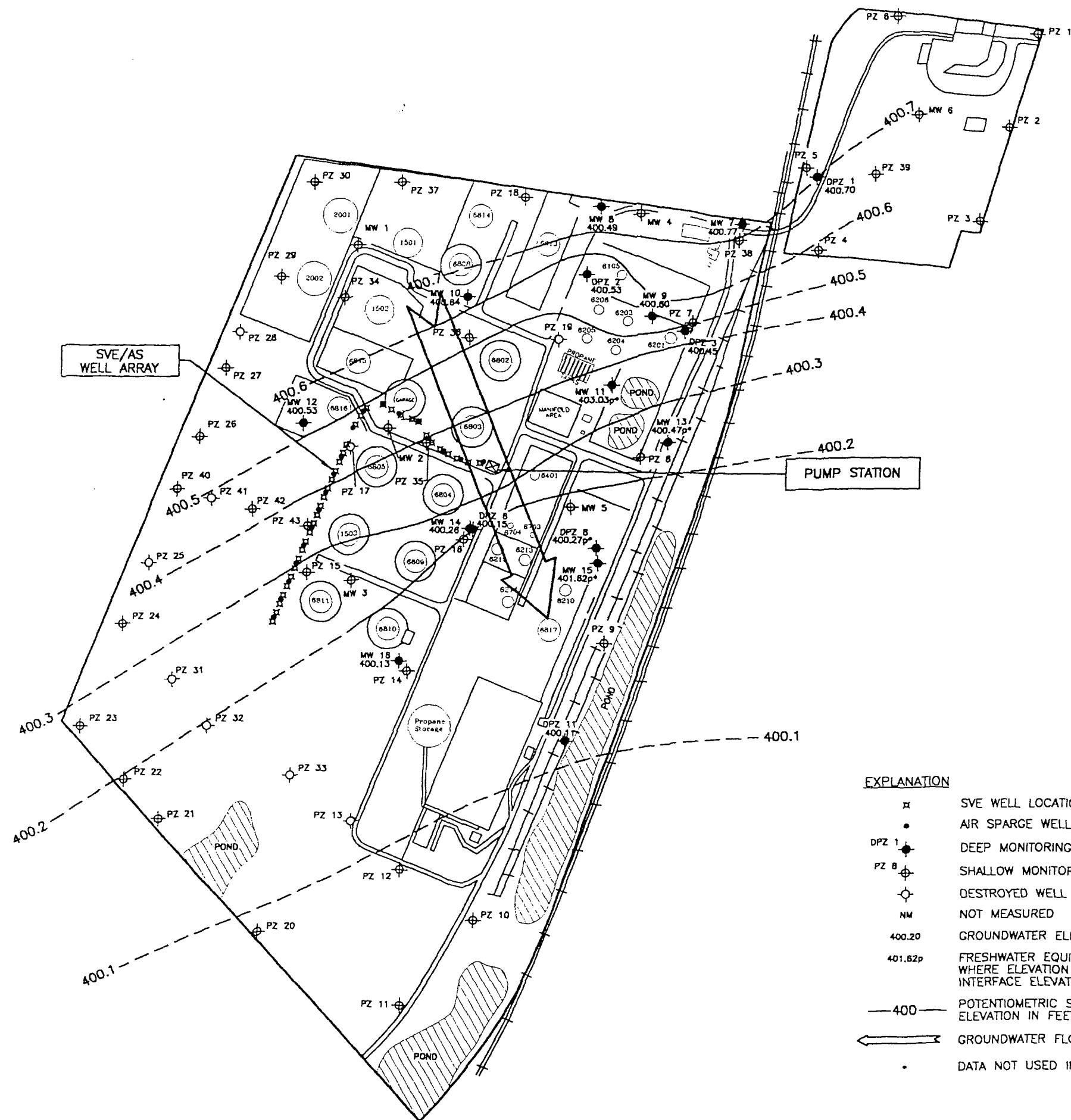
BENZENE CONCENTRATION MAP
 JUNE 20-23, 1995

DESIGNED BY MTH	DETAILED BY MTH/SCS	CHECKED BY
DATE 08/25/95	ACAD FILE BEN-0003	
PROJECT NO. 80024-002-03	PLOT SCALE 1=300'	

10/11/95 11:11 AM



SIGNATURE		DATE
DESIGNED BY		
PROJECT ENGINEER		
PROJECT MANAGER		
CLIENT		
INCORPORATED SECOR INTERNATIONAL INCORPORATED SECOR 355 UNION BOULEVARD SUITE 204 LAKEWOOD, COLORADO 80226		
PHILLIPS EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS		
POTENTIOMETRIC SURFACE MAP SHALLOW HYDROGEOLOGIC LAYER MAY 20, 1997		
DESIGNED BY	DRAWN BY	CHECKED BY
SHL	WTH	WLE
DATE	ACAD FILE	
07/28/97	WLE-0414	
PROJECT NO	PLOT SCALE	
80024-002-05	1" = 600'	
FIGURE 1		



EXPLANATION

- ⊠ SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DPZ 1 • DEEP MONITORING WELL LOCATION AND DESIGNATION
- PZ 8 • SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- ⊙ DESTROYED WELL
- NM NOT MEASURED
- 400.20 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- 401.82p FRESHWATER EQUIVALENT HEAD FOR WELL CONTAINING FREE PRODUCT WHERE ELEVATION = (0.749 x PRODUCT COLUMN) + OIL-WATER INTERFACE ELEVATION
- 400 — POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- DATA NOT USED IN DEVELOPING POTENTIOMETRIC SURFACE CONOTURS



0 300 600
SCALE IN FEET

SIGNATURE	DATE
REVIEW ENGINEER	
PROJECT ENGINEER	
PROJECT MANAGER	
CLIENT	

PHILLIPS
SECOR INTERNATIONAL INCORPORATED

SECOR

355 UNION BOULEVARD
SUITE 200
LAKEWOOD, COLORADO 80226

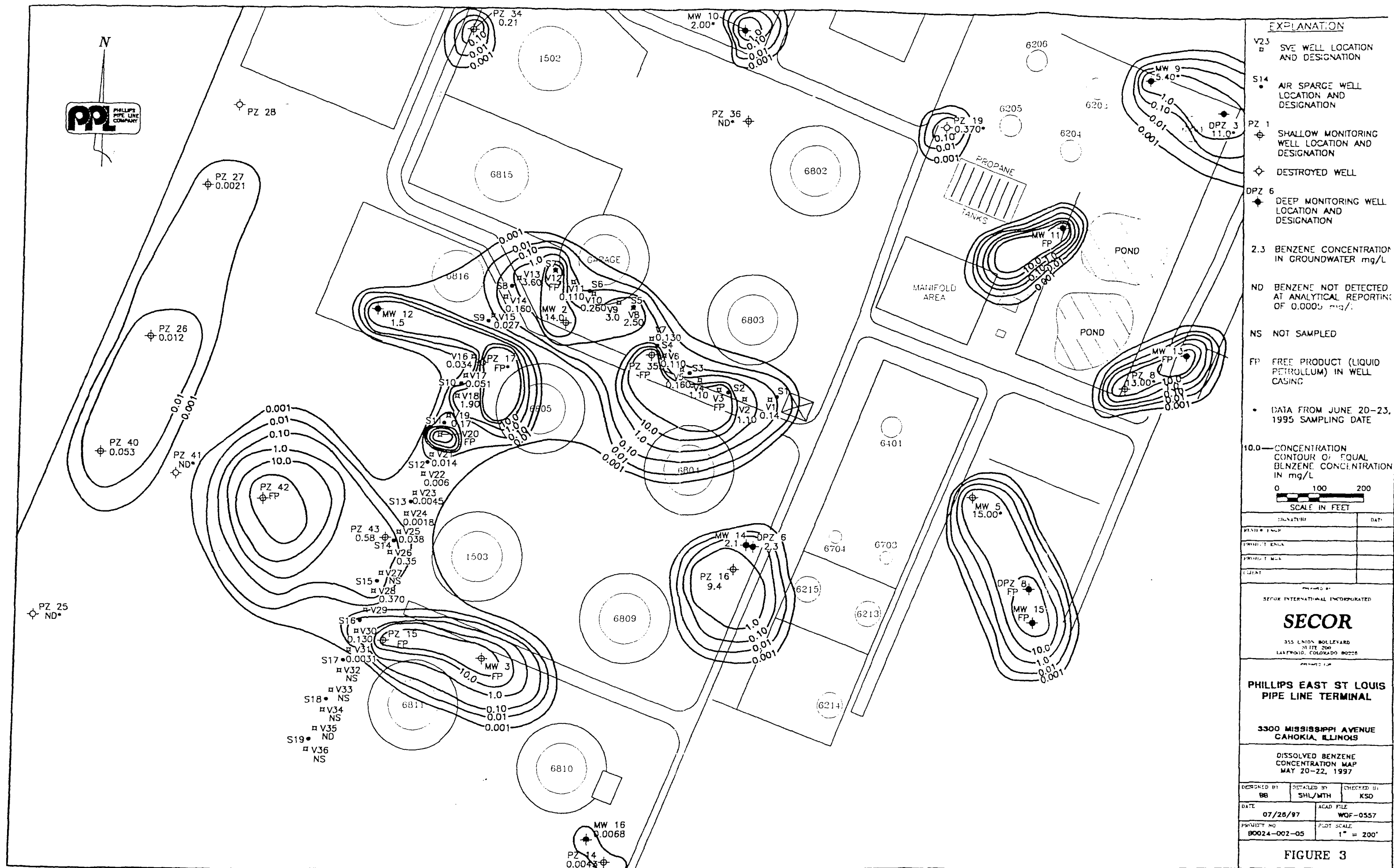
PHILLIPS EAST ST LOUIS
PIPE LINE TERMINAL

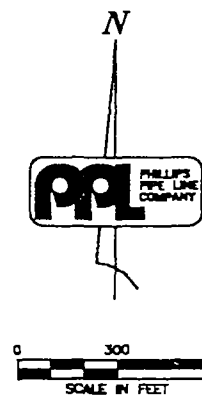
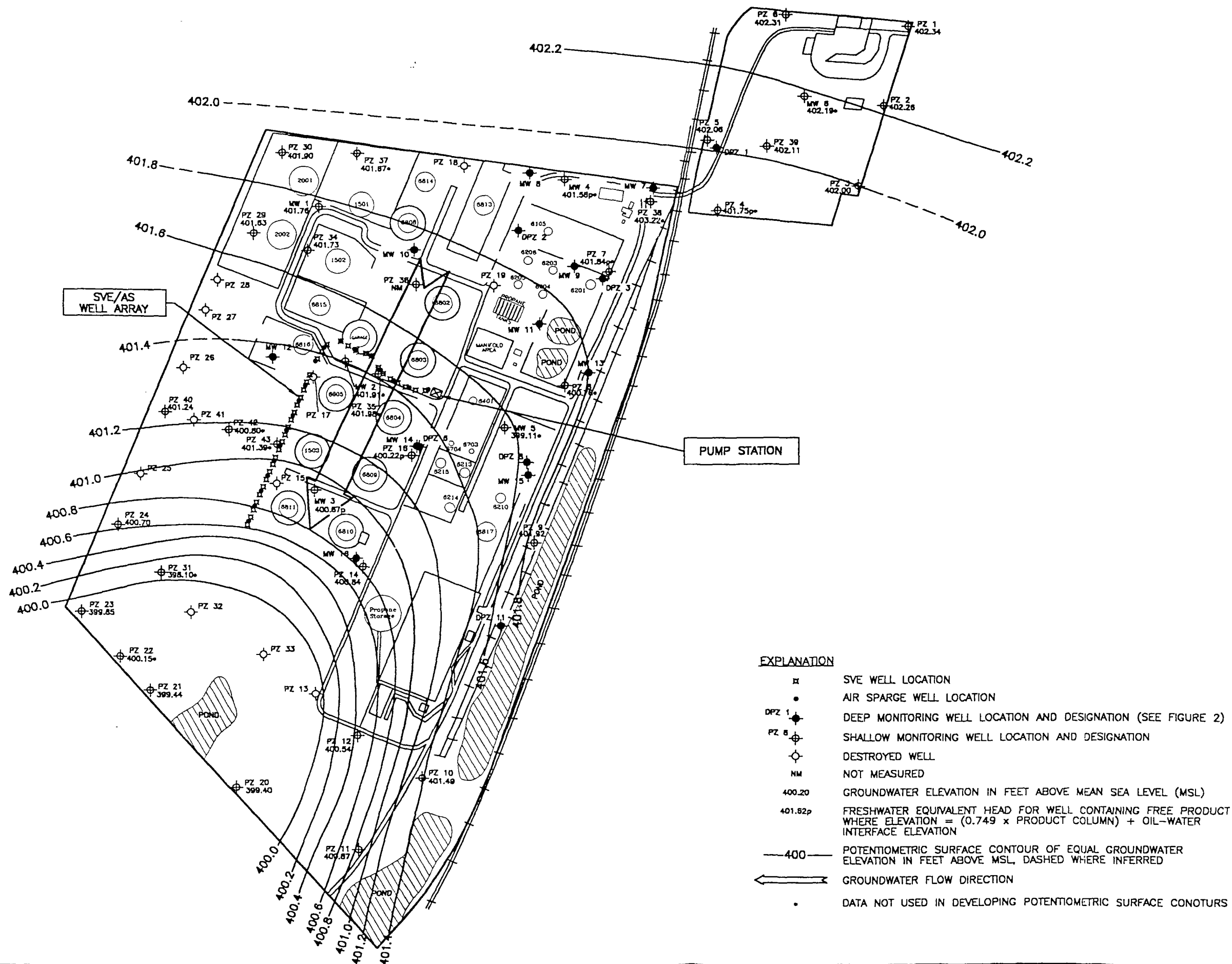
3300 MISSISSIPPI AVENUE
CAHOKIA, ILLINOIS

POTENTIOMETRIC SURFACE MAP
DEEP HYDROGEOLOGIC LAYER
MAY 20, 1997

DESIGNED BY RJR	DRAWN BY SHL/MTH	CHECKED BY [Signature]
DATE 07/28/97	ACAD FILE MLE-0415	
PROJECT NO. 80024-002-05	PLOT SCALE 1" = 600'	

FIGURE 2





SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:
 SECOR INTERNATIONAL INCORPORATED
SECOR
 14998 WEST 6TH AVENUE
 SUITE 800
 GOLDEN, COLORADO 80401

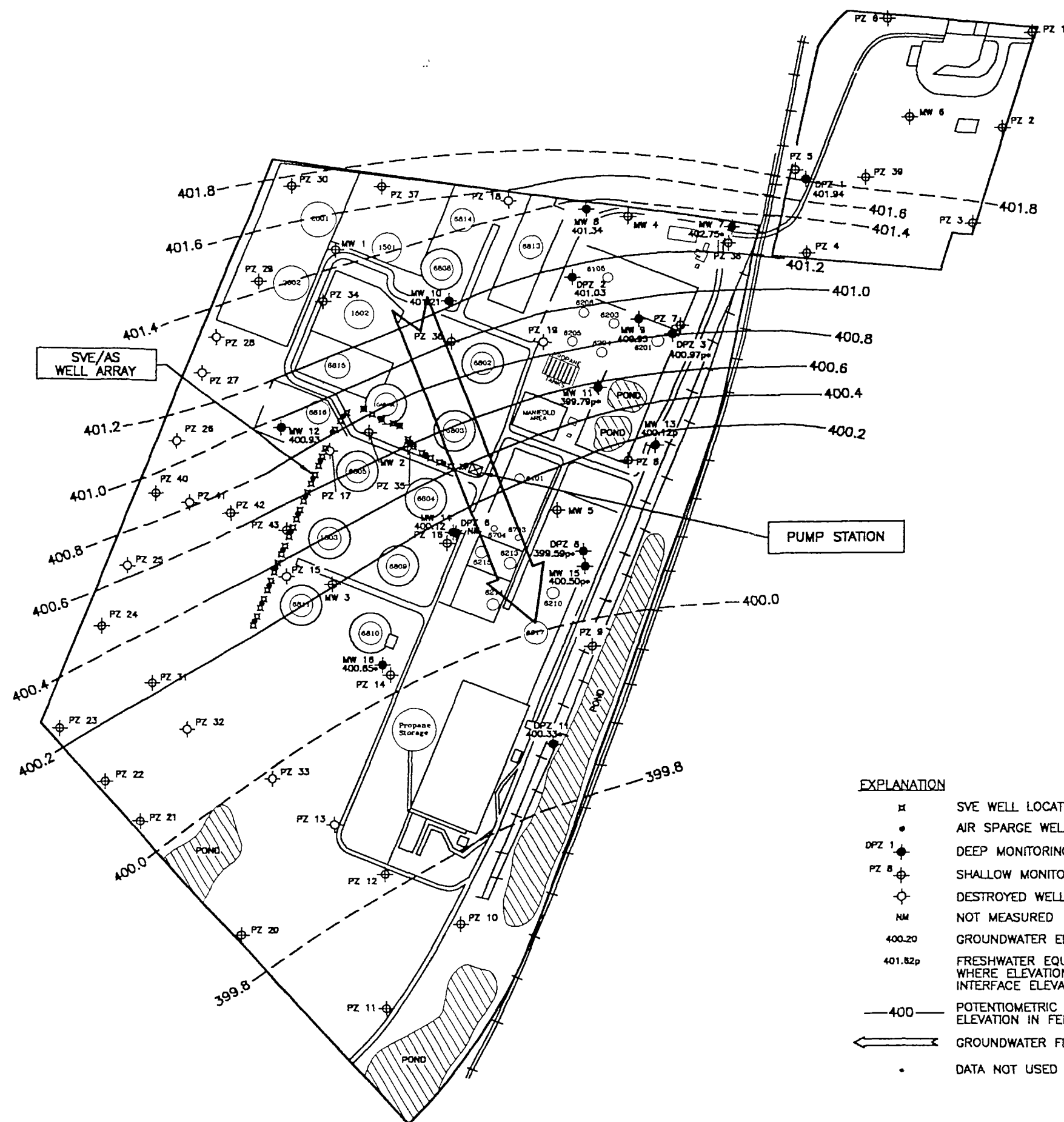
PREPARED FOR:
**PHILLIPS EAST ST LOUIS
 PIPE LINE TERMINAL**

**3300 MISSISSIPPI AVENUE
 CAHOKIA, ILLINOIS**

POTENTIOMETRIC SURFACE
 SHALLOW HYDROGEOLOGIC LAYER
 JULY 1999

DESIGNED BY: BB	DETAILED BY: MTH	CHECKED BY: KSD
DATE: 08/20/99	ACAD FILE: WLE-0977	
PROJECT NO: 011.06191.002	PLOT SCALE: 1" = 600'	

FIGURE 1



EXPLANATION

- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DEEP MONITORING WELL LOCATION AND DESIGNATION (SEE FIGURE 2)
- SHALLOW MONITORING WELL LOCATION AND DESIGNATION (SEE FIGURE 1)
- DESTROYED WELL
- NOT MEASURED
- GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- FRESHWATER EQUIVALENT HEAD FOR WELL CONTAINING FREE PRODUCT WHERE ELEVATION = (0.749 x PRODUCT COLUMN) + OIL-WATER INTERFACE ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- DATA NOT USED IN DEVELOPING POTENTIOMETRIC SURFACE CONOTURS



SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

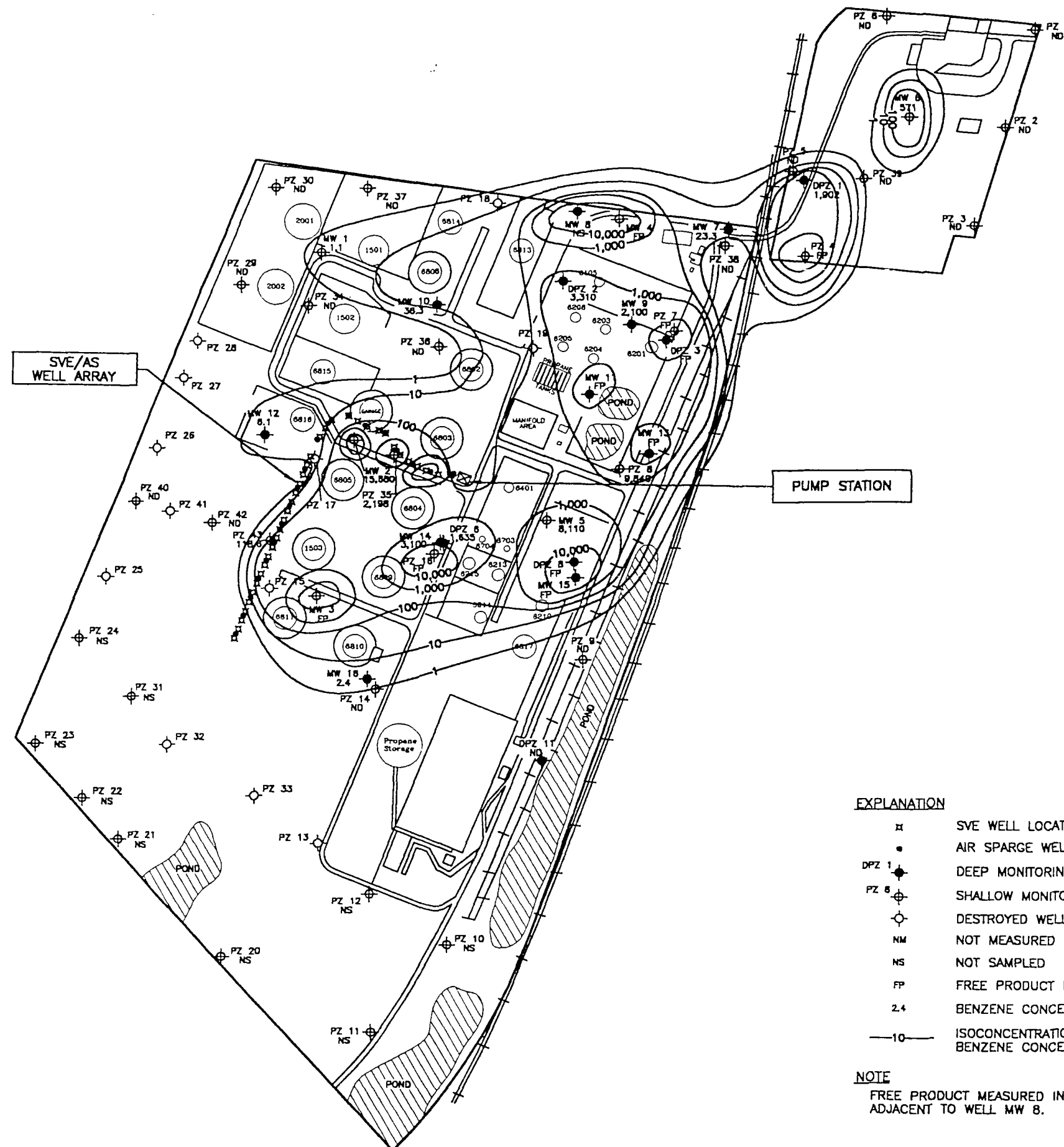
PREPARED BY:
 SECOR INTERNATIONAL INCORPORATED
SECOR
 14998 WEST 6TH AVENUE
 SUITE 800
 GOLDEN, COLORADO 80401

PREPARED FOR:
**PHILLIPS EAST ST LOUIS
 PIPE LINE TERMINAL**
 3300 MISSISSIPPI AVENUE
 CAHOKIA, ILLINOIS

POTENTIOMETRIC SURFACE
 DEEP HYDROGEOLOGIC LAYER
 JULY 1999

DESIGNED BY: BB	DETAILED BY: MTH	CHECKED BY: KSD
DATE: 08/01/99	ACAD FILE: WLE-0978	
PROJECT NO. 011.06181.002	PLOT SCALE: 1" = 600'	

FIGURE 2



EXPLANATION

- ⊕ SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DPZ 1 • DEEP MONITORING WELL LOCATION AND DESIGNATION
- PZ 8 ⊕ SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- ⊕ DESTROYED WELL
- NM NOT MEASURED
- NS NOT SAMPLED
- FP FREE PRODUCT IN WELL CASING
- 2.4 BENZENE CONCENTRATION IN ug/L
- 10— ISOCONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN ug/L

NOTE

FREE PRODUCT MEASURED IN 4-INCH WELLS (NOT SHOWN) ADJACENT TO WELL MW 8.



0 300 600
SCALE IN FEET

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

SECOR

14000 WEST 6TH AVENUE
SUITE 800
GOLDEN, COLORADO 80401

PREPARED FOR:

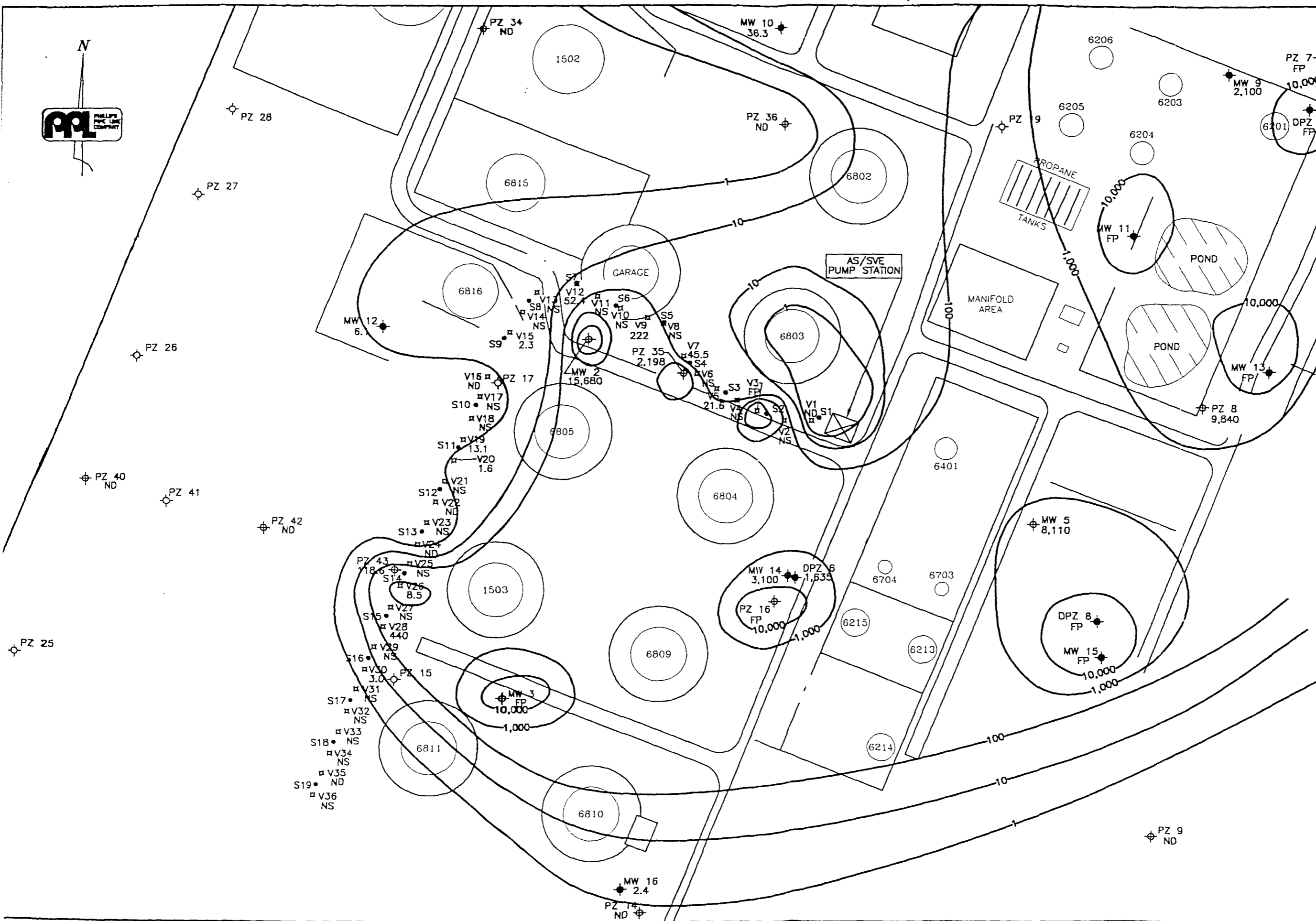
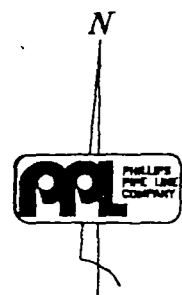
**PHILLIPS EAST ST LOUIS
PIPE LINE TERMINAL**

**3300 MISSISSIPPI AVENUE
CAHOKIA, ILLINOIS**

DISSOLVED BENZENE IN
SITE-WIDE GROUNDWATER
JULY 1999

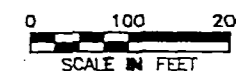
DESIGNED BY: BB	DETAILED BY: MTH	CHECKED BY: KSO
DATE: 09/20/99	ACAD FILE: WQF-1115	
PROJECT NO: 011.06191.002	PLOT SCALE: 1" = 800'	

FIGURE 3



EXPLANATION

- V23 SVE WELL LOCATION AND DESIGNATION
- S14 AIR SPARGE WELL LOCATION AND DESIGNATION
- PZ 8 9,840 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- PZ 1 10,000 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- PZ 25 DESTROYED WELL LOCATION & DESIGNATION
- DPZ 6 DEEP MONITORING WELL LOCATION AND DESIGNATION
- 2.3 BENZENE CONCENTRATION IN GROUNDWATER ug/L
- ND BENZENE NOT DETECTED ABOVE LABORATORY RECORDING LIMIT
- NS NOT SAMPLED
- FP FREE PRODUCT
- 10.0 CONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN ug/L (DASHED WHERE INFERRED)



SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

SECOR

14998 WEST 6TH AVENUE
SUITE 800
GOLDEN, COLORADO 80401

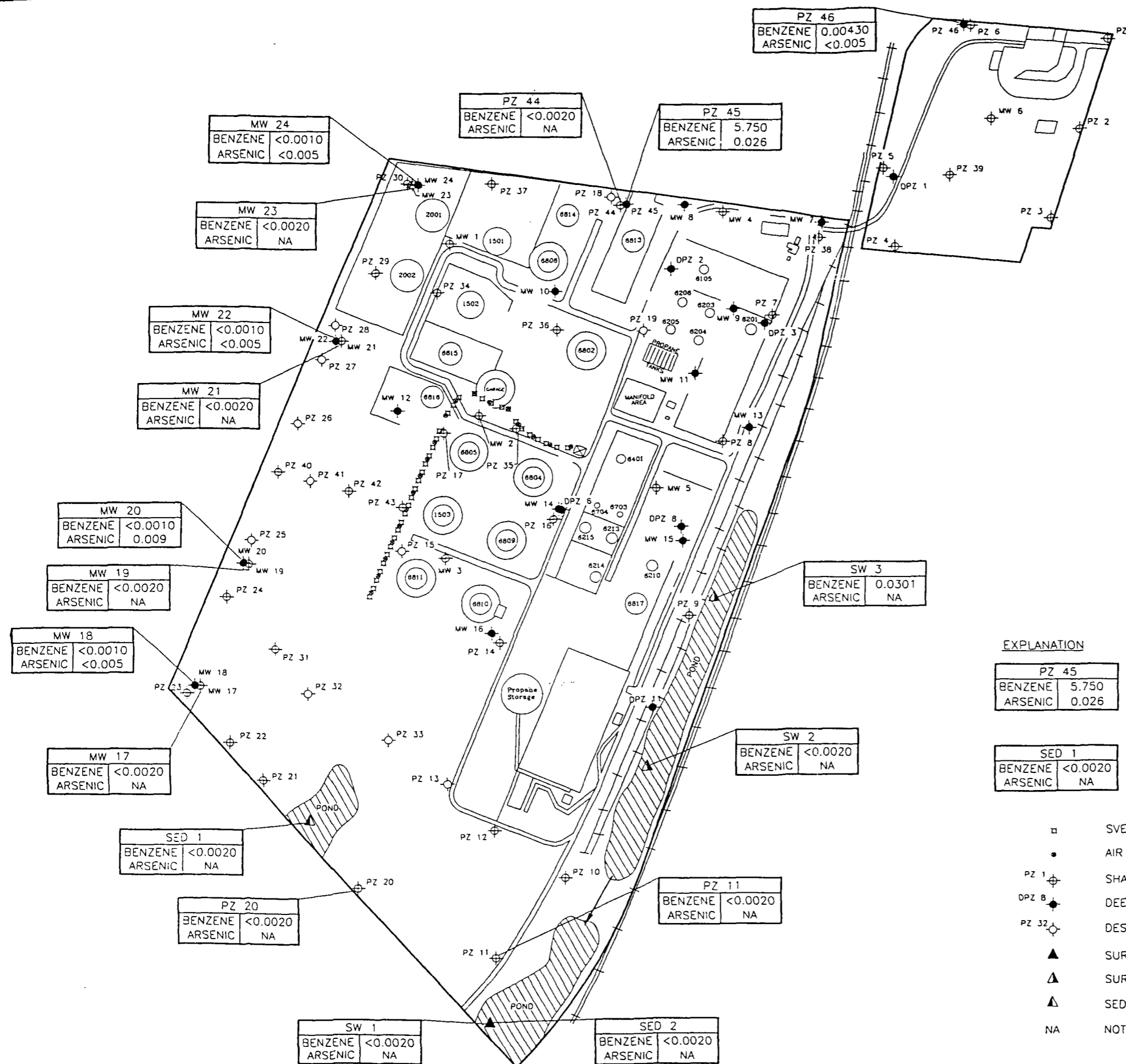
PHILLIPS EAST ST LOUIS
PIPE LINE TERMINAL

3300 MISSISSIPPI AVENUE
CAHOKIA, ILLINOIS

DISSOLVED BENZENE IN
REMEDIATION AREA GROUNDWATER
JULY 1999

DESIGNED BY: BB	DETAILED BY: MTH	CHECKED BY: KSD
DATE: 09/20/99	ACAD FILE: WQF-1114	
PROJECT NO.: 011.06191.002	PLOT SCALE: 1" = 200'	

FIGURE 4



EXPLANATION

PZ 45	
BENZENE	5.750
ARSENIC	0.026

BENZENE CONCENTRATION
ARSENIC CONCENTRATION
AQUEOUS SAMPLE RESULTS (mg/L)

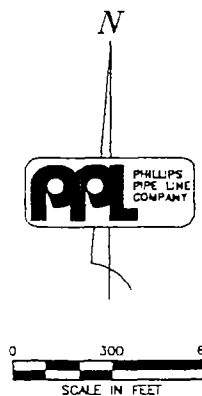
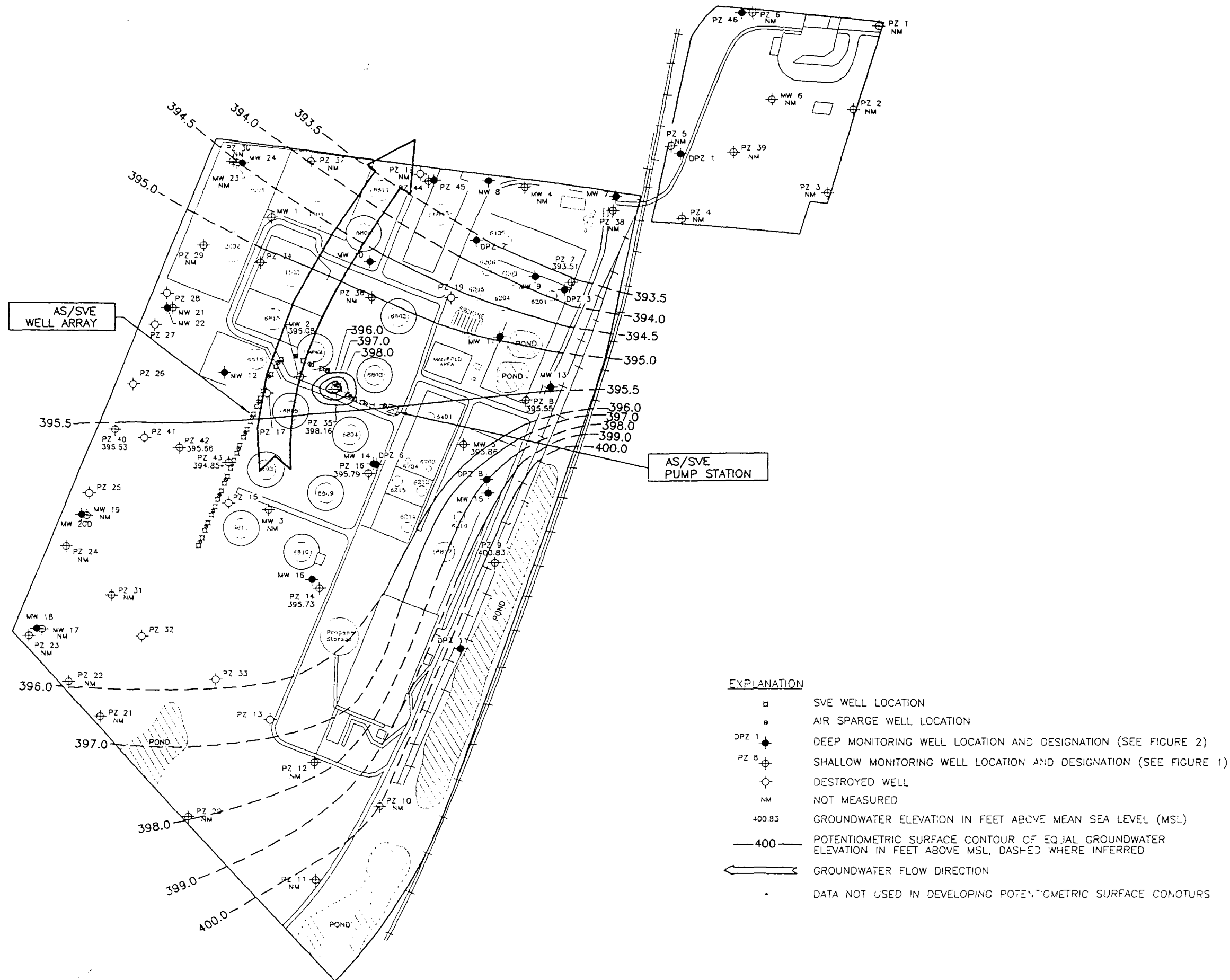
SED 1	
BENZENE	<0.0020
ARSENIC	NA

BENZENE CONCENTRATION
ARSENIC CONCENTRATION
SEDIMENT SAMPLE RESULTS (mg/kg)

- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- PZ 1 SHALLOW MONITORING WELL LOCATION AND IDENTIFICATION
- DPZ 8 DEEP MONITORING WELL LOCATION AND IDENTIFICATION
- PZ 32 DESTROYED WELL LOCATION AND IDENTIFICATION
- ▲ SURFACE WATER AND SEDIMENT SAMPLE LOCATION
- △ SURFACE WATER SAMPLE LOCATION
- △ SEDIMENT SAMPLE LOCATION
- NA NOT ANALYZED

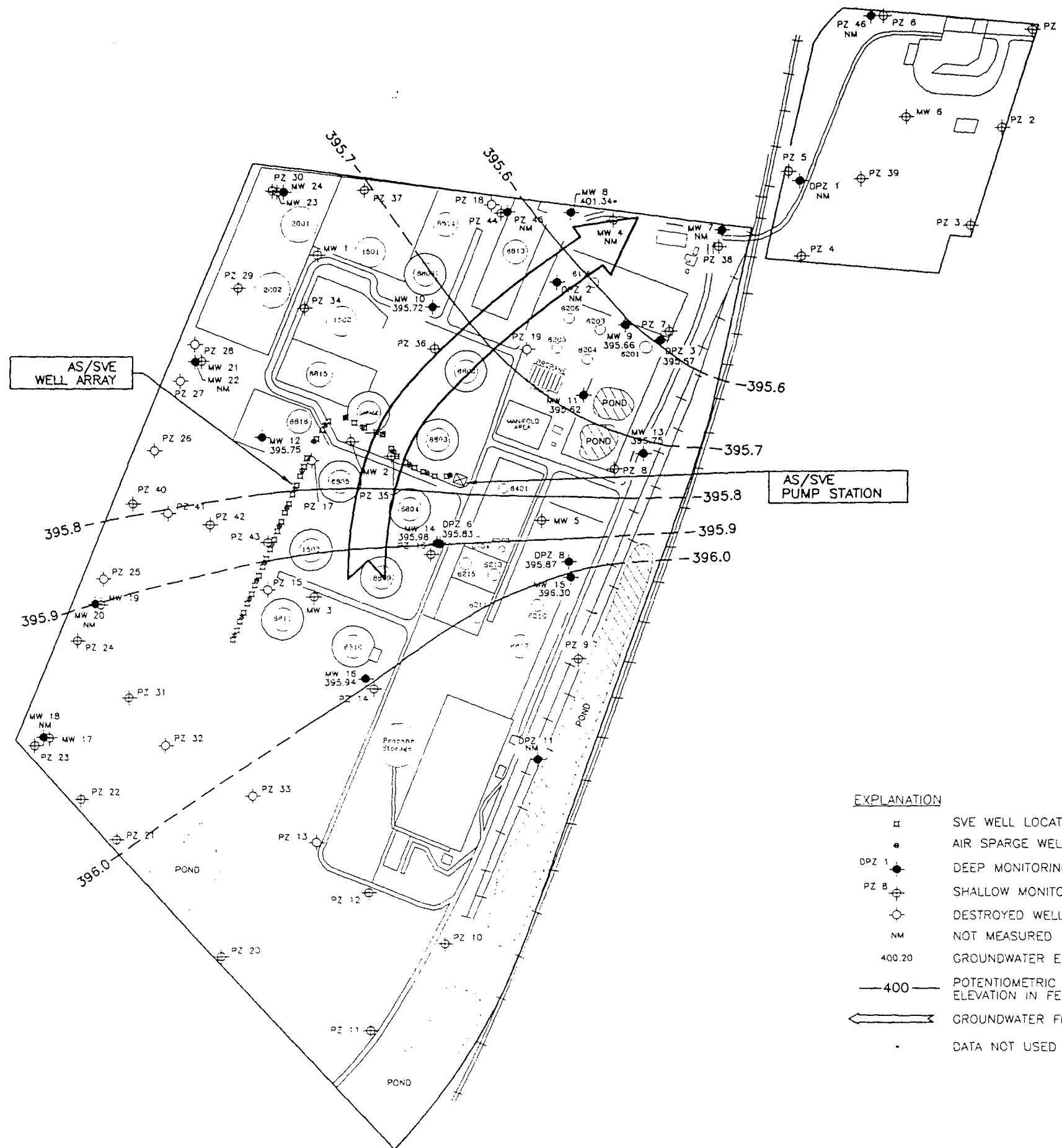


SIGNATURE		DATE
REVIEW ENGR.		
PROJECT ENGR.		
PROJECT MGR.		
CLIENT:		
PREPARED BY SECOR INTERNATIONAL INCORPORATED SECOR 14998 WEST 6TH AVENUE SUITE 800 GOLDEN, COLORADO 80401		
PREPARED FOR: PHILLIPS EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS		
MEDIA SAMPLING RESULTS		
DESIGNED BY: KSD	DETAILED BY: MTH	CHECKED BY: KSD
DATE: 09/01/00	ACAD FILE: WQF-1356	
PROJECT NO: 011.06221.004	PLOT SCALE: 1" = 600'	
FIGURE 2		



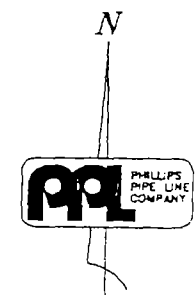
SIGNATURE	DATE
REVIEW ENGR.	
PROJECT ENGR.	
PROJECT MGR.	
CLIENT	
PREPARED BY: SECOR INTERNATIONAL INCORPORATED SECOR 1499A WEST 6TH AVENUE SUITE 800 GOLDEN, COLORADO 80401 PREPARED FOR:	
PHILLIPS EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS	
POTENTIOMETRIC SURFACE SHALLOW HYDROGEOLOGIC LAYER JULY 24, 2000	
DESIGNED BY SL	CHECKED BY KSD
DATE 02/15/01	AFAD FILE WOF-1399
PROJECT NO. 011.06232.002	PLAT SCALE 1" = 600'

FIGURE 4



EXPLANATION

- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DPZ 1 • DEEP MONITORING WELL LOCATION AND DESIGNATION (SEE FIGURE 2)
- PZ 8 • SHALLOW MONITORING WELL LOCATION AND DESIGNATION (SEE FIGURE 1)
- DESTROYED WELL
- NM NOT MEASURED
- 400.20 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- 400— POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- DATA NOT USED IN DEVELOPING POTENTIOMETRIC SURFACE CONOTURS



0 300 600
SCALE IN FEET

SIGNATURE	DATE
REVIEW ENGR	
PROJECT ENGR	
PROJECT MGR	
CLIENT	

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

SECOR

14998 WEST 8TH AVENUE
SUITE 800
GOLDEN, COLORADO 80401

**PHILLIPS EAST ST LOUIS
PIPE LINE TERMINAL**

3300 MISSISSIPPI AVENUE
CAHOKIA, ILLINOIS

POTENTIOMETRIC SURFACE
DEEP HYDROGEOLOGIC LAYER
JULY 24, 2000

DESIGNED BY SL	DRAWN BY MTH	CHECKED BY KSD
DATE 02/15/01	APPROVAL WCF-1398	
PROJECT NO. 011.06232.002	PLOT SCALE 1" = 600'	

FIGURE 5



EXPLANATION

- V23 SVE WELL LOCATION AND DESIGNATION
- S14 AIR SPARGE WELL LOCATION AND DESIGNATION
- PZ 1 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- PZ 25 DESTROYED WELL LOCATION & DESIGNATION
- DPZ 6 DEEP MONITORING WELL LOCATION AND DESIGNATION
- 2.3 BENZENE CONCENTRATION IN GROUNDWATER ug/L
- ND BENZENE NOT DETECTED ABOVE LABORATORY RECORDING LIMIT
- NS NOT SAMPLED
- FP FREE PRODUCT
- 10.0 CONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN ug/L (DASHED WHERE INFERRED)
- * SAMPLED MAY 2000
- ** SAMPLED AUGUST 2000
- *** MEASURED JANUARY 2001

SCALE IN FEET

SIGNATURE	DATE
REVIEW ENGR	
PROJECT ENGR	
PROJECT MGR	
CLIENT	

PREPARED BY:

SECOR INTERNATIONAL INCORPORATED

SECOR

14908 WEST 7TH AVENUE
SUITE 300
GOLDEN, COLORADO 80401

PHILLIPS EAST ST LOUIS
PIPE LINE TERMINAL

3300 MISSISSIPPI AVENUE
CAHOKIA, ILLINOIS

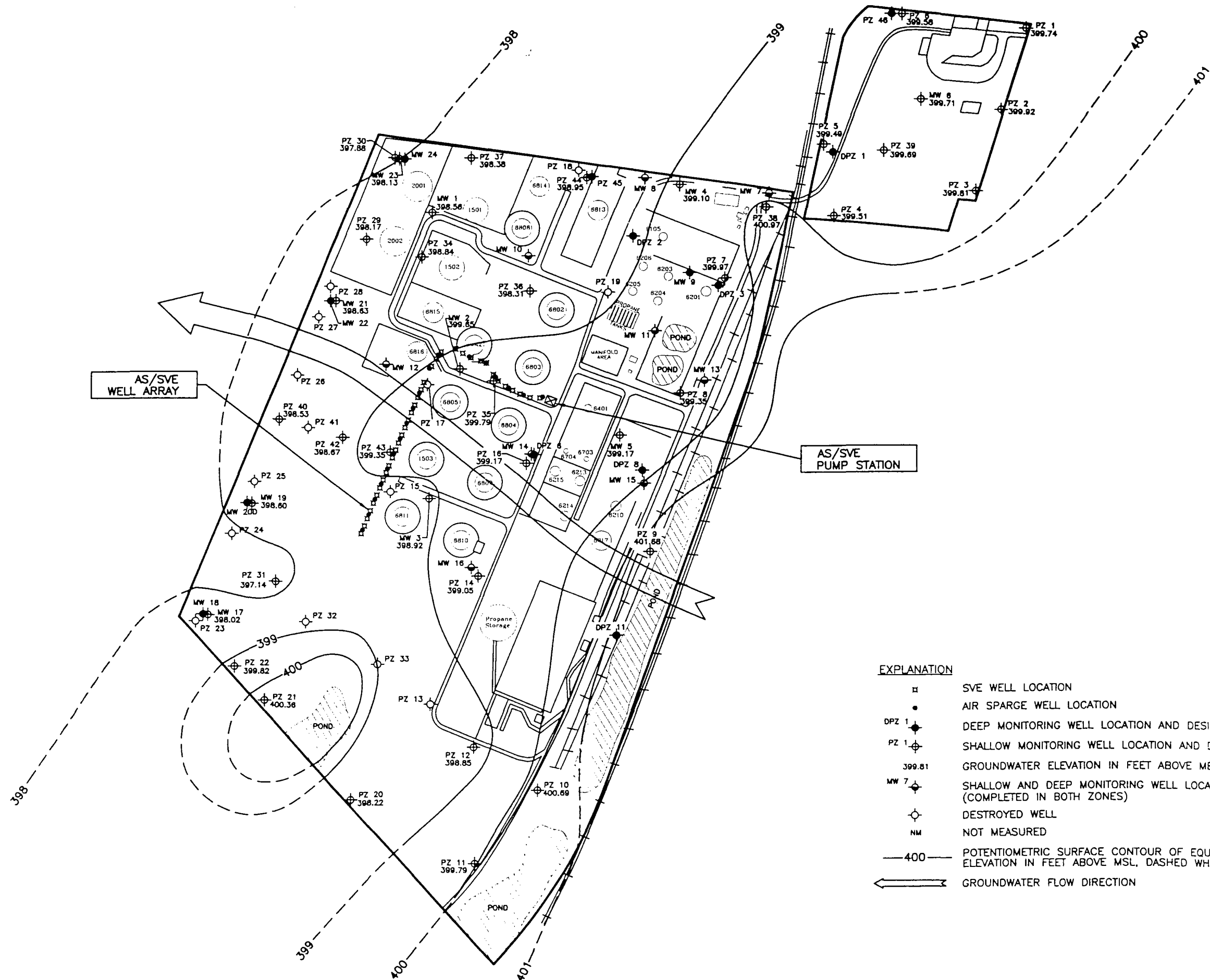
DISSOLVED BENZENE IN
REMEDIATION AREA GROUNDWATER
JULY 2000

EXAMINED BY	DESIGNED BY	CHECKED BY
SL	WTH	KSD

DATE	WQF FILE
02/15/01	WQF-1397

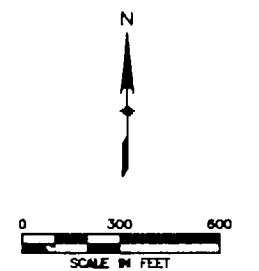
PROJECT NO.	SCALE
011.06232.002	1" = 200'


FIGURE 6

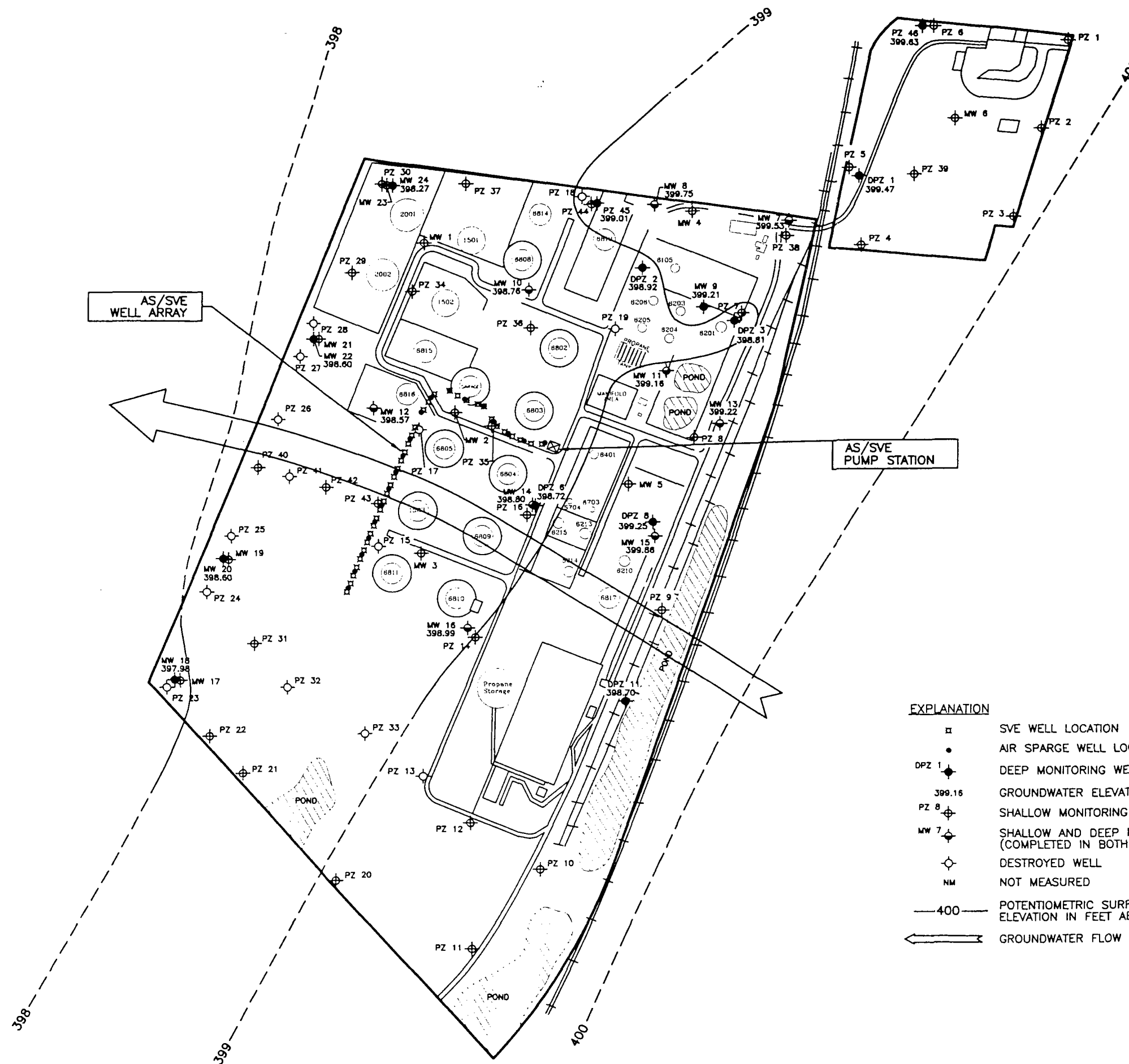


EXPLANATION

- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DPZ 1 • DEEP MONITORING WELL LOCATION AND DESIGNATION
- PZ 1 • SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- 399.81 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- MW 7 • SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION (COMPLETED IN BOTH ZONES)
- DESTROYED WELL
- NM NOT MEASURED
- 400 — POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED
- ⇨ GROUNDWATER FLOW DIRECTION

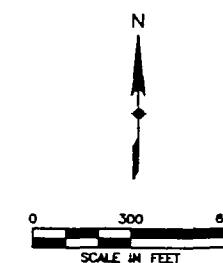


SIGNATURE		DATE
REVIEW ENGINEER		
PROJECT ENGINEER		
PROJECT MANAGER		
CLIENT		
PREPARED BY		
 SECOR 14998 WEST 6th AVENUE, SUITE 800 GOLDEN, COLORADO		
PREPARED FOR		
ConocoPhillips EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS		
TITLE		
POTENTIOMETRIC SURFACE SHALLOW HYDROGEOLOGIC LAYER JULY 9, 2002		
DESIGNED BY	DRAWN BY	CHECKED BY
CJW	MTH	KSD
DATE	CAD FILE	
06/24/03	WLE-1889	
PROJECT No.	DRAWING SCALE	
11CP 70540 00	1"=300'	
FIGURE 4		



EXPLANATION

- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- DPZ 1 • DEEP MONITORING WELL LOCATION AND DESIGNATION
- 399.16 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- PZ 8 • SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- MW 7 • SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION (COMPLETED IN BOTH ZONES)
- DESTROYED WELL
- NM NOT MEASURED
- 400— POTENTIOMETRIC SURFACE CONTOUR OF EQUAL GROUNDWATER ELEVATION IN FEET ABOVE MSL, DASHED WHERE INFERRED
- ← GROUNDWATER FLOW DIRECTION



SIGNATURE	DATE
REVIEW ENGINEER	
PROJECT ENGINEER	
PROJECT MANAGER	
CLIENT	

PREPARED BY

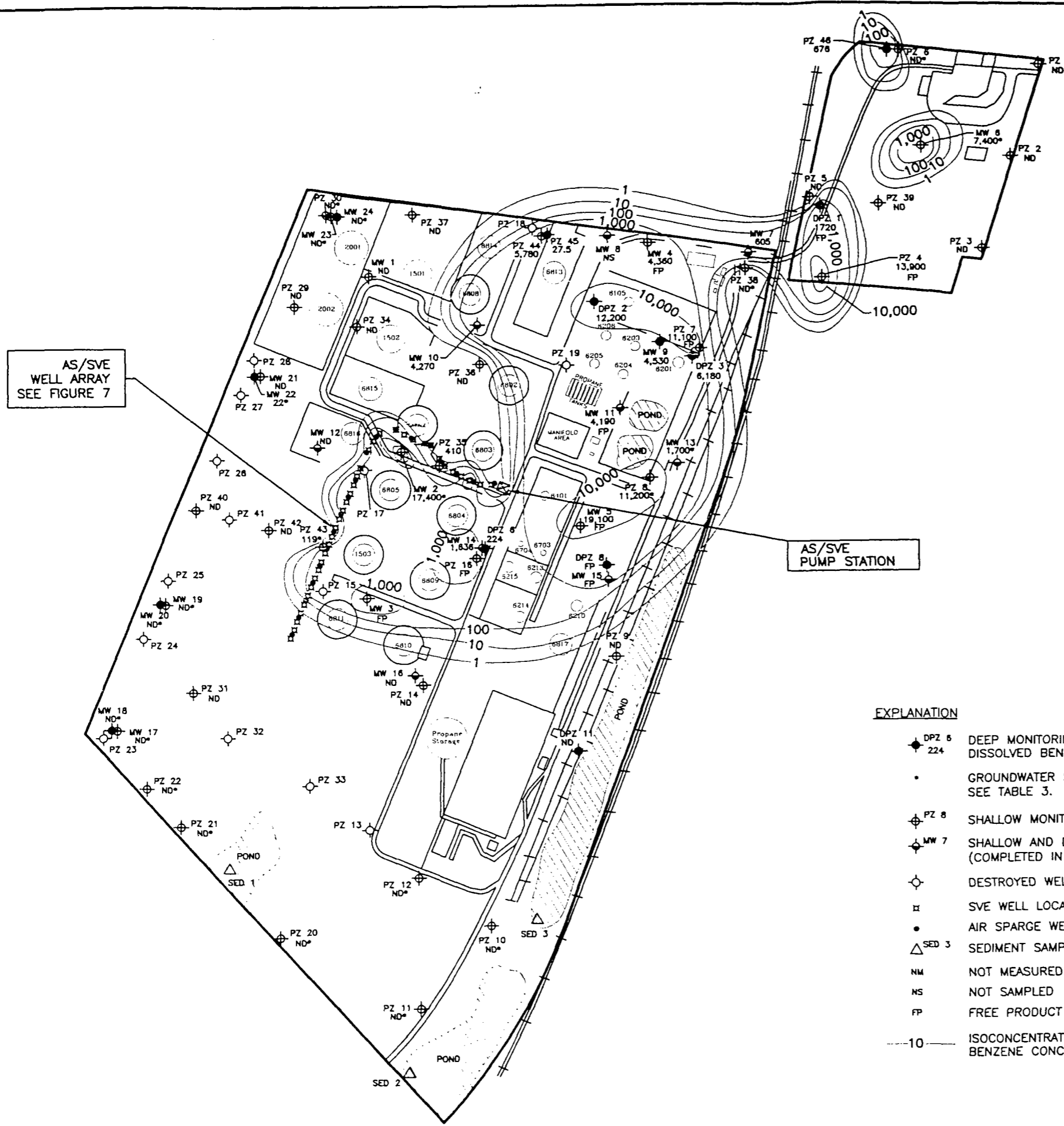
SECOR
 14998 WEST 8th AVENUE, SUITE 800
 GOLDEN, COLORADO

PREPARED FOR
ConocoPhillips
 EAST ST LOUIS
 PIPE LINE TERMINAL
 3300 MISSISSIPPI AVENUE
 CAHOKIA, ILLINOIS

TITLE
 POTENTIOMETRIC SURFACE
 DEEP HYDROGEOLOGIC LAYER
 JULY 9, 2002

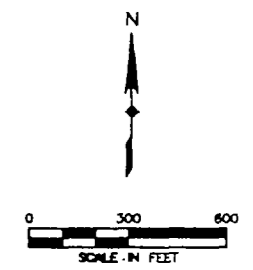
DESIGNED BY CJW	DRAWN BY MTH	CHECKED BY KSD
DATE 06/24/03	CAD FILE WLE-1868	
PROJECT NO. 11CP 70540 00	DRAWING SCALE 1"=300'	

FIGURE 5



EXPLANATION

- DPZ 5 224 DEEP MONITORING WELL LOCATION AND DESIGNATION
DISSOLVED BENZENE CONCENTRATION IN ug/L SAMPLED IN JUNE 2002
- GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2002.
SEE TABLE 3.
- PZ 8 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- MW 7 SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION
(COMPLETED IN BOTH ZONES)
- DESTROYED WELL
- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- SED 3 SEDIMENT SAMPLE LOCATION AND IDENTIFICATION
- NM NOT MEASURED
- NS NOT SAMPLED
- FP FREE PRODUCT IN WELL CASING
- 10 ISOCONCENTRATION CONTOUR OF EQUAL DISSOLVED
BENZENE CONCENTRATION IN ug/L

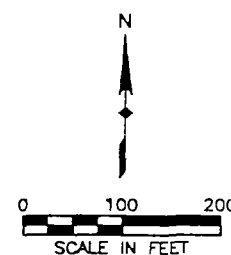


SIGNATURE	DATE
REVIEW ENGINEER	
PROJECT ENGINEER	
PROJECT MANAGER	
CLIENT	
PREPARED BY	
<p>SECOR 14998 WEST 6th AVENUE, SUITE 800 GOLDEN, COLORADO</p>	
<p>PREPARED FOR:</p> <p>ConocoPhillips EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS</p>	
<p>TITLE</p> <p>DISSOLVED BENZENE IN SITE-WIDE GROUNDWATER JULY 2002</p>	
DESIGNED BY C.J.W.	CHECKED BY KSD
DATE 06/24/03	CAD FILE WQF-2330
PROJECT No. 11CP 70540 00	DRAWING SCALE 1"=300'

FIGURE 6

EXPLANATION

- V23 SVE WELL LOCATION AND DESIGNATION
- S14 AIR SPARGE WELL LOCATION AND DESIGNATION (NOT SAMPLED)
- PZ 1 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- PZ 25 DESTROYED WELL
- DPZ 6 DEEP MONITORING WELL
- 224 BENZENE CONCENTRATION IN GROUNDWATER ug/L SEE TABLE 3
- MW-13 SHALLOW AND DEEP MONITORING WELL
- * GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2002. SEE TABLE 3
- ND BENZENE NOT DETECTED ABOVE LABORATORY RECORDING LIMIT
- NS NOT SAMPLED
- FP FREE PRODUCT IN WELL CASING
- 10.0 CONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN ug/L (DASHED WHERE INFERRED)



SIGNATURE	DATE
REVIEW ENGINEER	
PROJECT ENGINEER	
PROJECT MANAGER	
CLIENT	

PREPARED BY	
	
SECOR	
14998 WEST 6TH AVENUE, SUITE 900 GOLDEN, COLORADO	

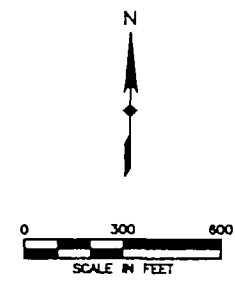
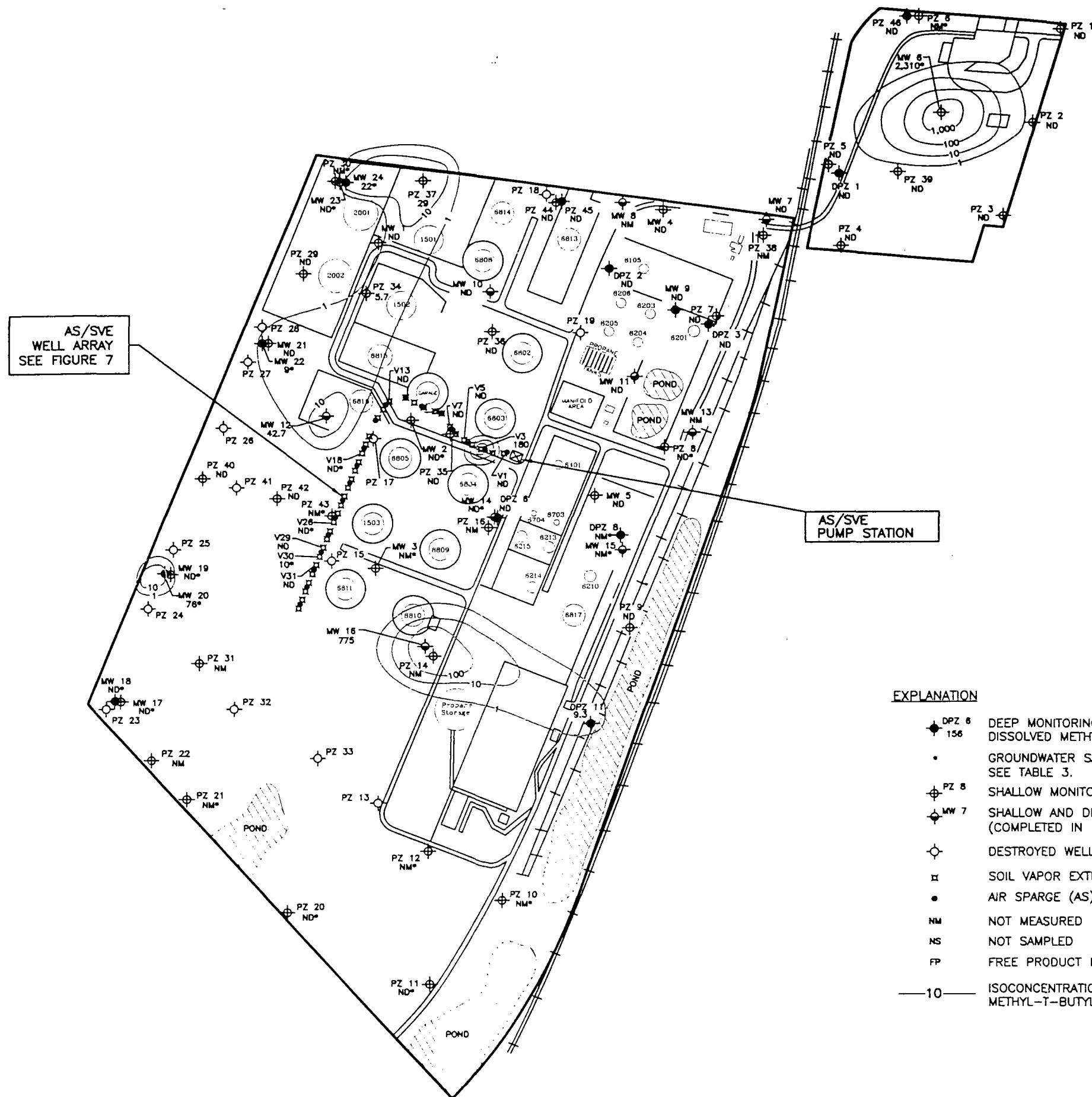
PREPARED FOR:	ConocoPhillips
	EAST ST LOUIS PIPE LINE TERMINAL
	3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS

TITLE	DISSOLVED BENZENE IN REMEDIATION AREA GROUNDWATER JUNE 2002
-------	---

DESIGNED BY	DRAWN BY	CHECKED BY
CJW	MTH	KSD
DATE	CAD FILE	WQF-2376
06/24/03		
PROJECT No	DRAWING SCALE	
11CP 70540.00	1=100	



FIGURE 7

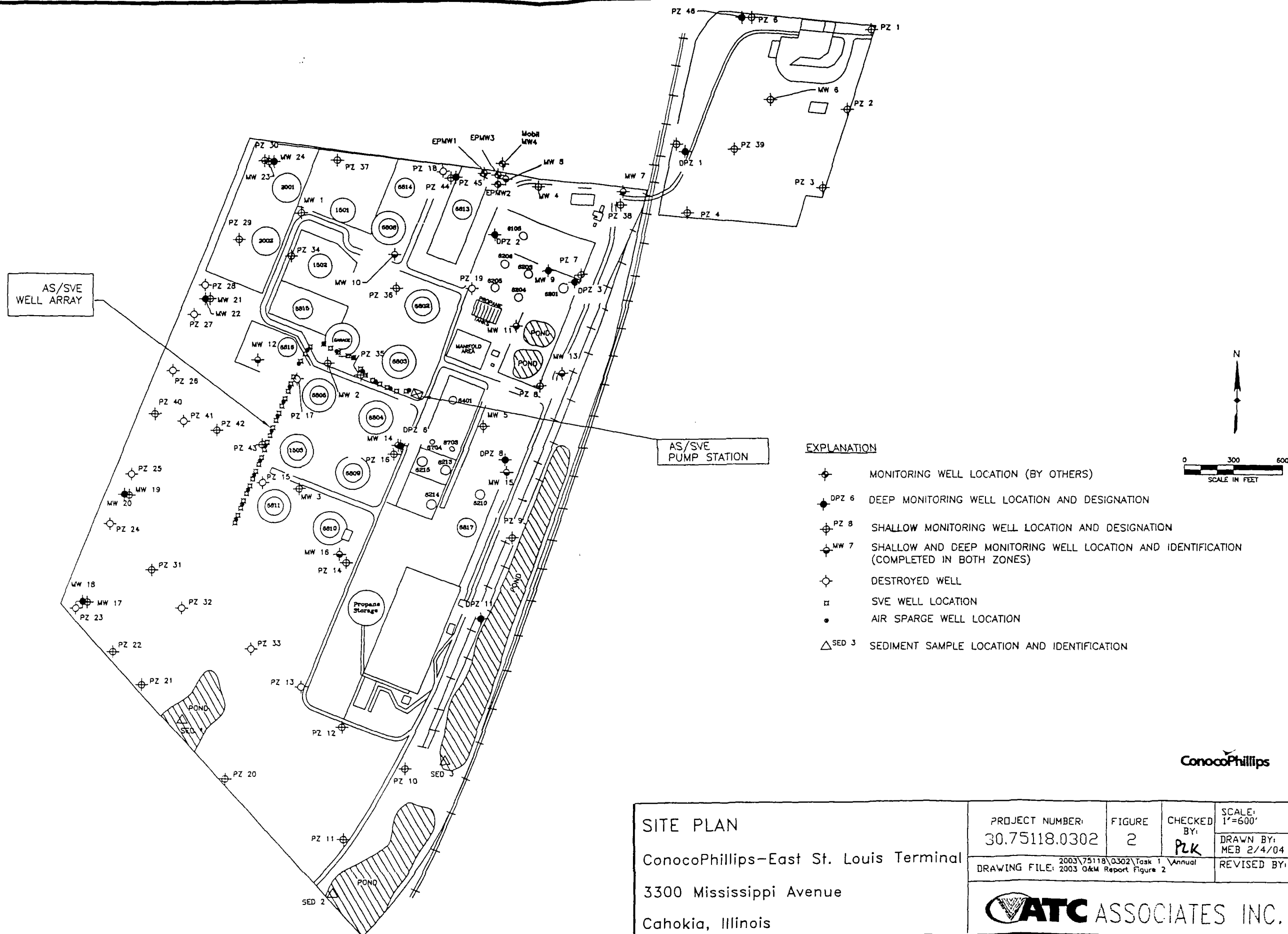


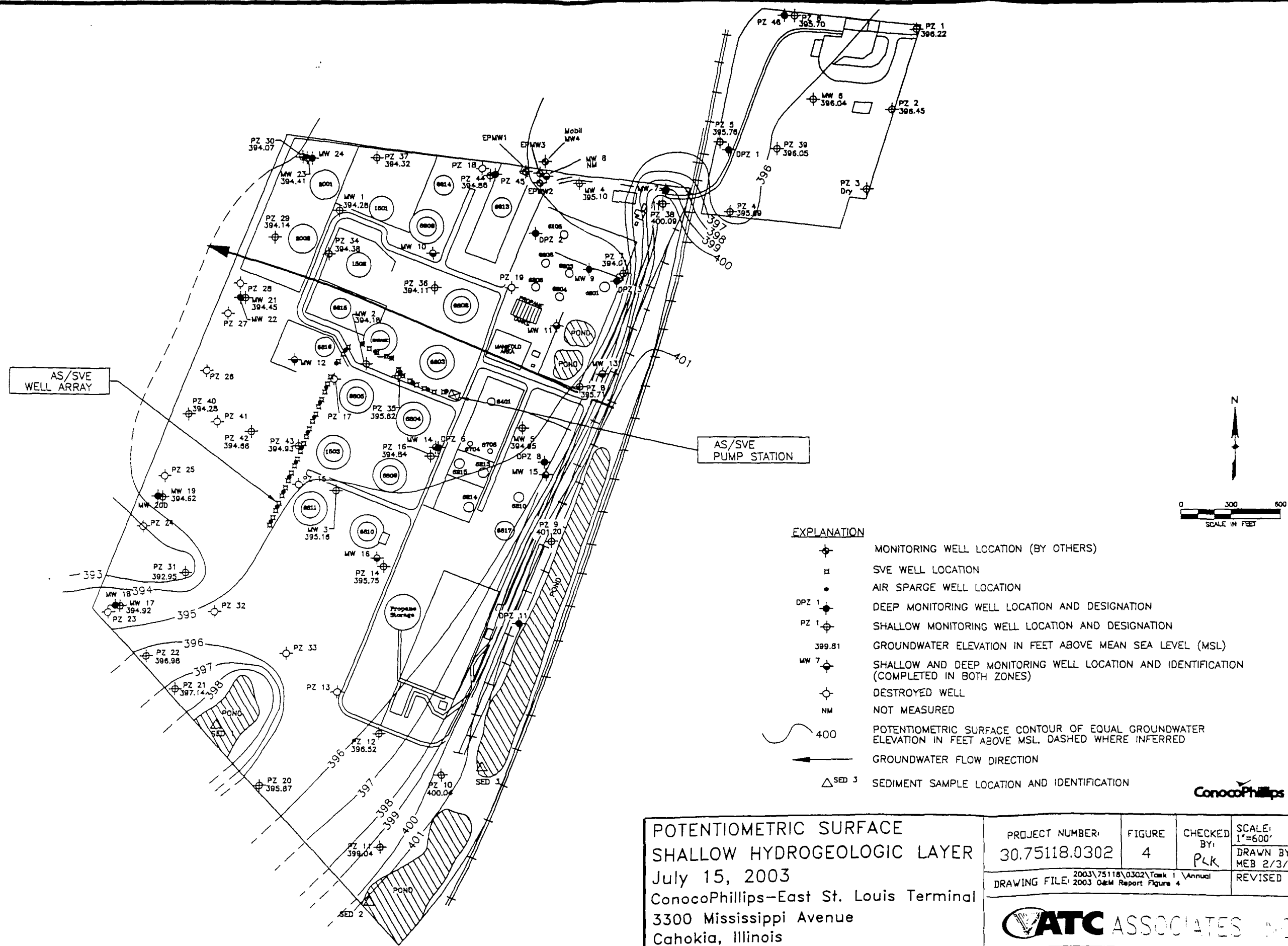


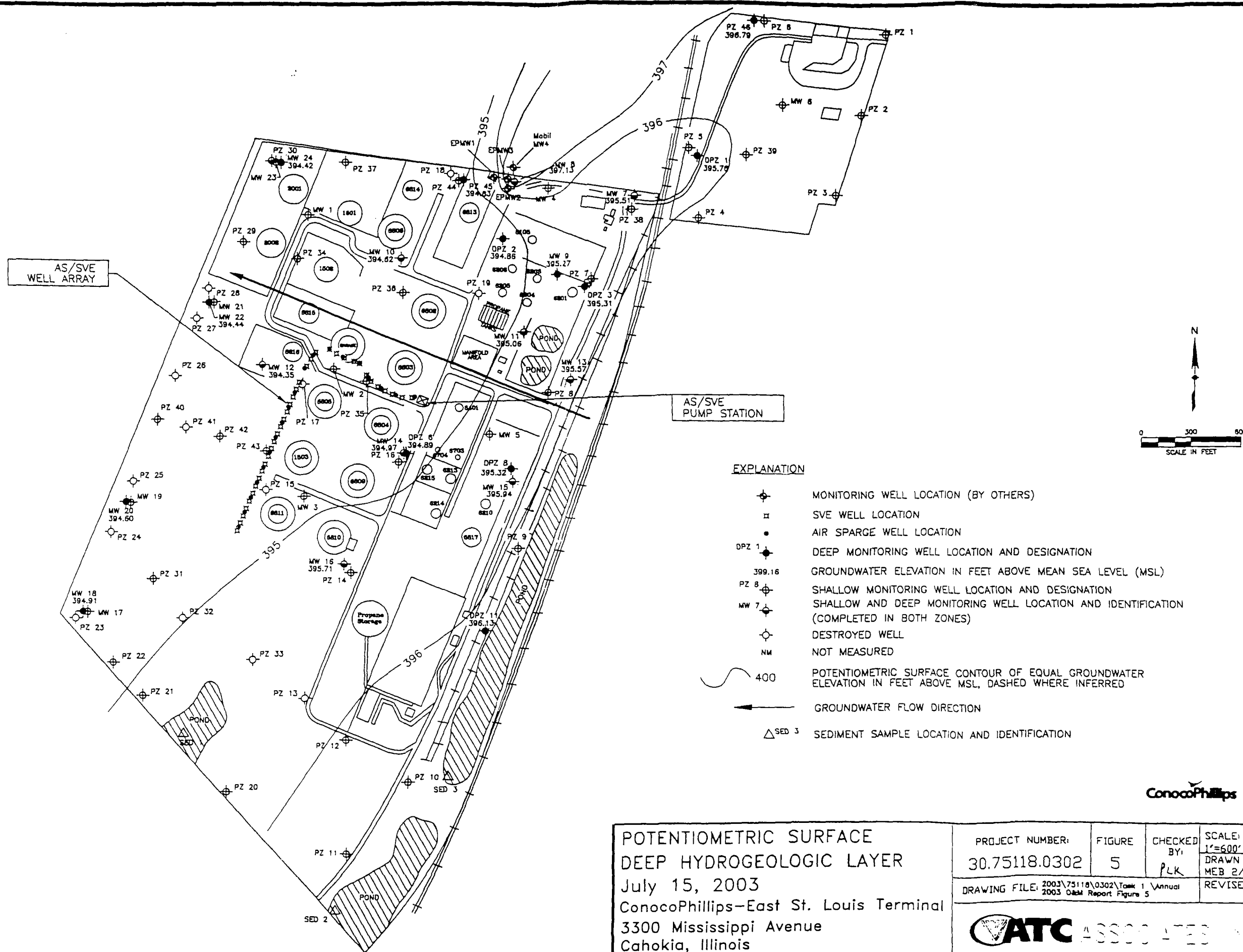
EXPLANATION

- DPZ 8 156 DEEP MONITORING WELL LOCATION AND DESIGNATION
DISSOLVED METHYL-T-BUTYLETHER CONCENTRATION IN ug/L
• GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2002.
SEE TABLE 3.
- PZ 8 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- MW 7 SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION
(COMPLETED IN BOTH ZONES)
- ☉ DESTROYED WELL
- SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- AIR SPARGE (AS) WELL LOCATION
- NM NOT MEASURED
- NS NOT SAMPLED
- FP FREE PRODUCT IN WELL CASING
- 10— ISOCONCENTRATION CONTOUR OF EQUAL
METHYL-T-BUTYLETHER CONCENTRATION IN ug/L

SIGNATURE		DATE
REVIEW ENGINEER		
PROJECT ENGINEER		
PROJECT MANAGER		
CLIENT		
PREPARED BY		
 SECOR 14998 WEST 6th AVENUE, SUITE 800 GOLDEN, COLORADO		
PREPARED FOR		
 ConocoPhillips EAST ST LOUIS PIPE LINE TERMINAL 3300 MISSISSIPPI AVENUE CAHOKIA, ILLINOIS		
TITLE		
METHYL-T-BUTYLETHER IN SITE-WIDE GROUNDWATER JULY 2002		
DESIGNED BY:	DRAWN BY:	CHECKED BY:
CJW	MTM	KSD
DATE:	CAD FILE:	
06/24/03	WQF-1968	
PROJECT No.	DRAWING SCALE:	
11CP 70540 00	1"=300'	
FIGURE 8		





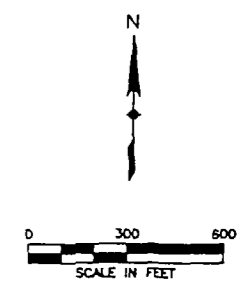


AS/SVE
WELL ARRAY
SEE FIGURE 7

AS/SVE
PUMP STATION

EXPLANATION

- MONITORING WELL LOCATION (BY OTHERS)
- DPZ 6 224 DEEP MONITORING WELL LOCATION AND DESIGNATION
DISSOLVED BENZENE CONCENTRATION IN ug/L SAMPLED IN JUNE 2003
- GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2003. SEE TABLE 3.
- PZ 8 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- MW 7 SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION
(COMPLETED IN BOTH ZONES)
- DESTROYED WELL
- SVE WELL LOCATION
- AIR SPARGE WELL LOCATION
- FP FREE PRODUCT IN WELL CASING
- 10 ISOCONCENTRATION CONTOUR OF EQUAL DISSOLVED
BENZENE CONCENTRATION IN ug/L
- SED 3 SEDIMENT SAMPLE LOCATION AND IDENTIFICATION

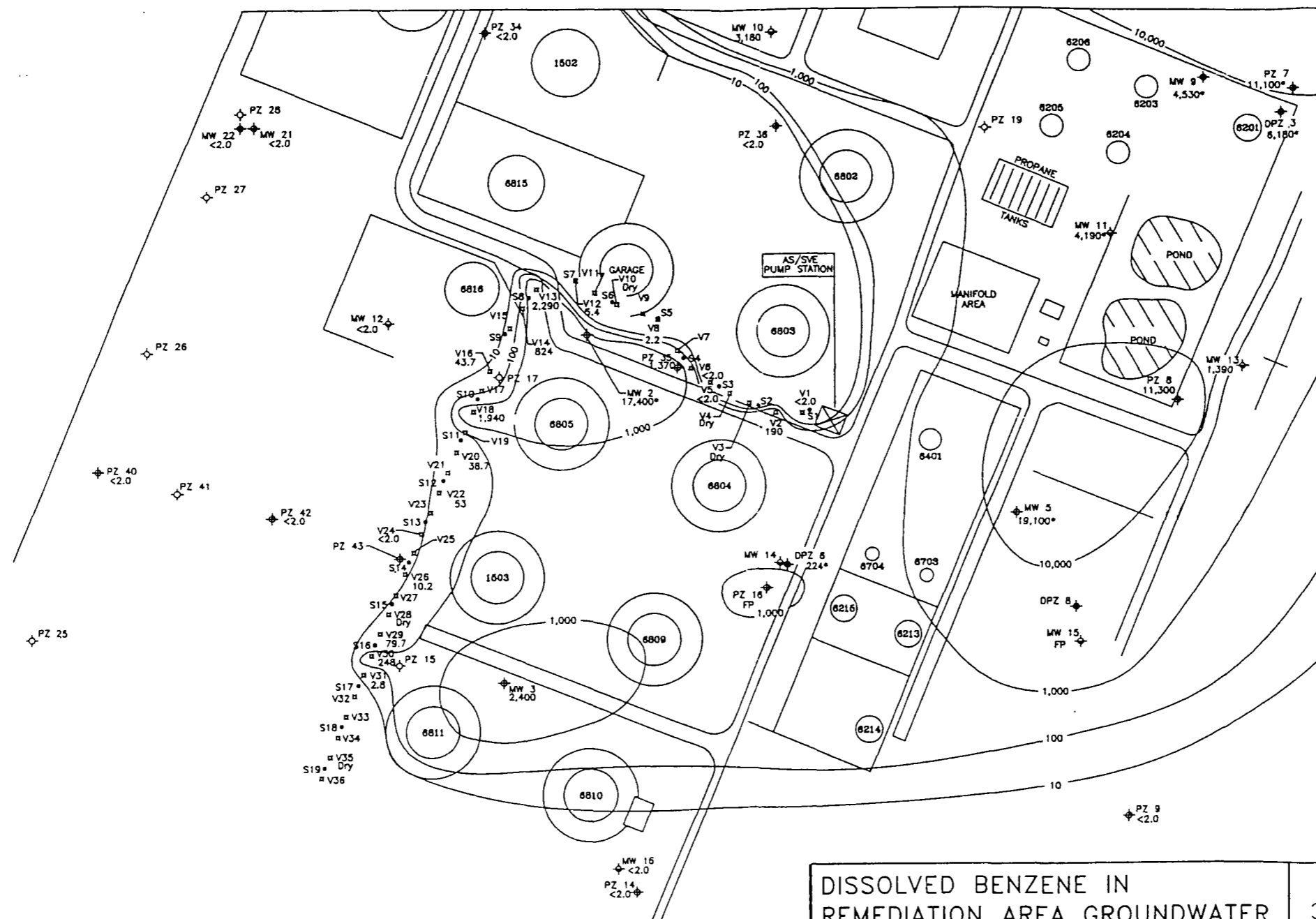


ConocoPhillips

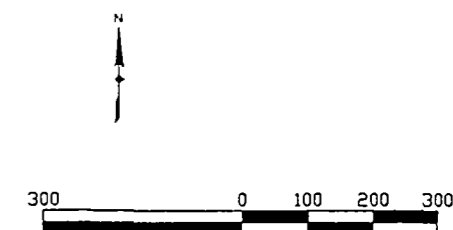
DISSOLVED BENZENE IN
SITE-WIDE GROUNDWATER
July 2003
ConocoPhillips-East St. Louis Terminal
3300 Mississippi Avenue
Cahokia, Illinois

PROJECT NUMBER: 30.75118.0302	FIGURE 6	CHECKED BY: PLK	SCALE: 1"=600'
DRAWING FILE: 2003\75118\0302\Task 1\Annual 2003 O&M Report Figure 6			DRAWN BY: MEB 2/3/04
			REVISED BY:

ATC ASSOCIATES INC.



- EXPLANATION**
- V23 SVE WELL LOCATION AND DESIGNATION
 - S14 AIR SPARGE WELL LOCATION AND DESIGNATION (NOT SAMPLED)
 - PZ 1 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
 - PZ 25 DESTROYED WELL
 - DPZ 6 DEEP MONITORING WELL
 - 224 BENZENE CONCENTRATION IN GROUNDWATER ug/L SEE TABLE 3
 - MW-13 SHALLOW AND DEEP MONITORING WELL
 - GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2003. SEE TABLE 3
 - ND BENZENE NOT DETECTED ABOVE LABORATORY RECORDING LIMIT
 - NS NOT SAMPLED
 - FP FREE PRODUCT IN WELL CASING
 - 10.0 CONCENTRATION CONTOUR OF EQUAL BENZENE CONCENTRATION IN ug/L (DASHED WHERE INFERRED)



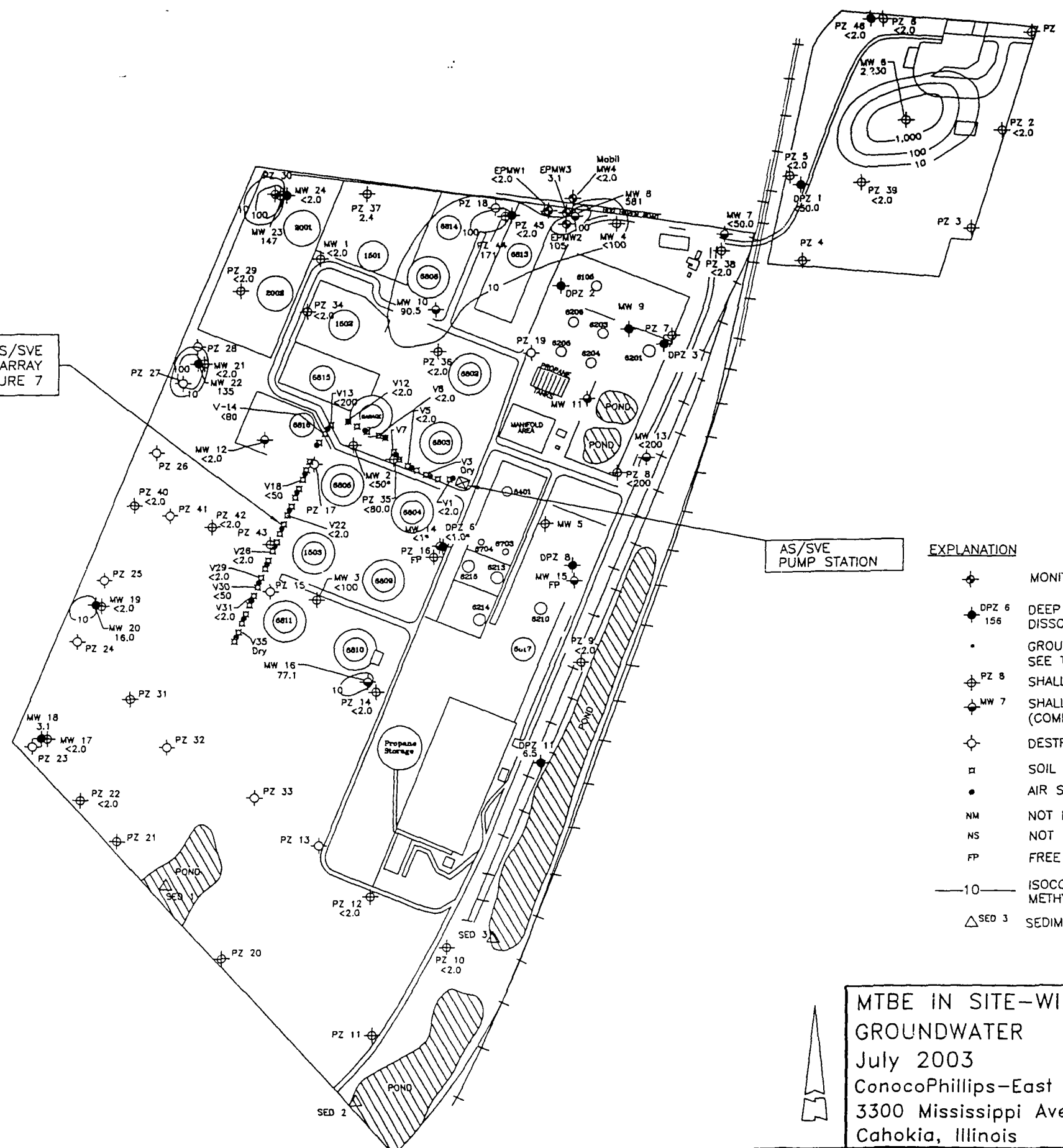
ConocoPhillips

DISSOLVED BENZENE IN
REMEDATION AREA GROUNDWATER
July 2003
ConocoPhillips-East St. Louis Terminal
3300 Mississippi Avenue
Cahokia, Illinois

PROJECT NUMBER: 30.75118.0302	FIGURE 7	CHECKED BY: PLK	SCALE: 1"=300'
DRAWING FILE: 2003\75118\0302\Fig 7\Annual 2003 0&M Report Figure 7			DRAWN BY: MEB 2/4/04
			REVISED BY:

ATC ASSOCIATES INC.

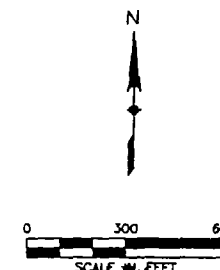
AS/SVE
WELL ARRAY
SEE FIGURE 7



AS/SVE
PUMP STATION

EXPLANATION

- ◆ MONITORING WELL LOCATION (BY OTHERS)
- ◆ DPZ 6 156 DEEP MONITORING WELL LOCATION AND DESIGNATION DISSOLVED METHYL-T-BUTYLETHER CONCENTRATION IN ug/L
- GROUNDWATER SAMPLE COLLECTED PRIOR TO YEAR 2003. SEE TABLE 3.
- ◆ PZ 8 SHALLOW MONITORING WELL LOCATION AND DESIGNATION
- ◆ MW 7 SHALLOW AND DEEP MONITORING WELL LOCATION AND IDENTIFICATION (COMPLETED IN BOTH ZONES)
- DESTROYED WELL
- SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- AIR SPARGE (AS) WELL LOCATION
- NM NOT MEASURED
- NS NOT SAMPLED
- FP FREE PRODUCT IN WELL CASING
- 10— ISOCONCENTRATION CONTOUR OF EQUAL METHYL-T-BUTYLETHER CONCENTRATION IN ug/L
- △ SED 3 SEDIMENT SAMPLE LOCATION AND IDENTIFICATION



ConocoPhillips

MTBE IN SITE-WIDE
GROUNDWATER
July 2003
ConocoPhillips-East St. Louis Terminal
3300 Mississippi Avenue
Cahokia, Illinois

PROJECT NUMBER: 30.75118.0302	FIGURE 8	CHECKED BY: PLK	SCALE: 1"=600'
DRAWING FILE: 2003\75118\0302\Task 1\Annual 2003 O&M Report Figure 8		DRAWN BY: MEB 2/3/04	REVISED BY:

ATC ASSOCIATES INC.